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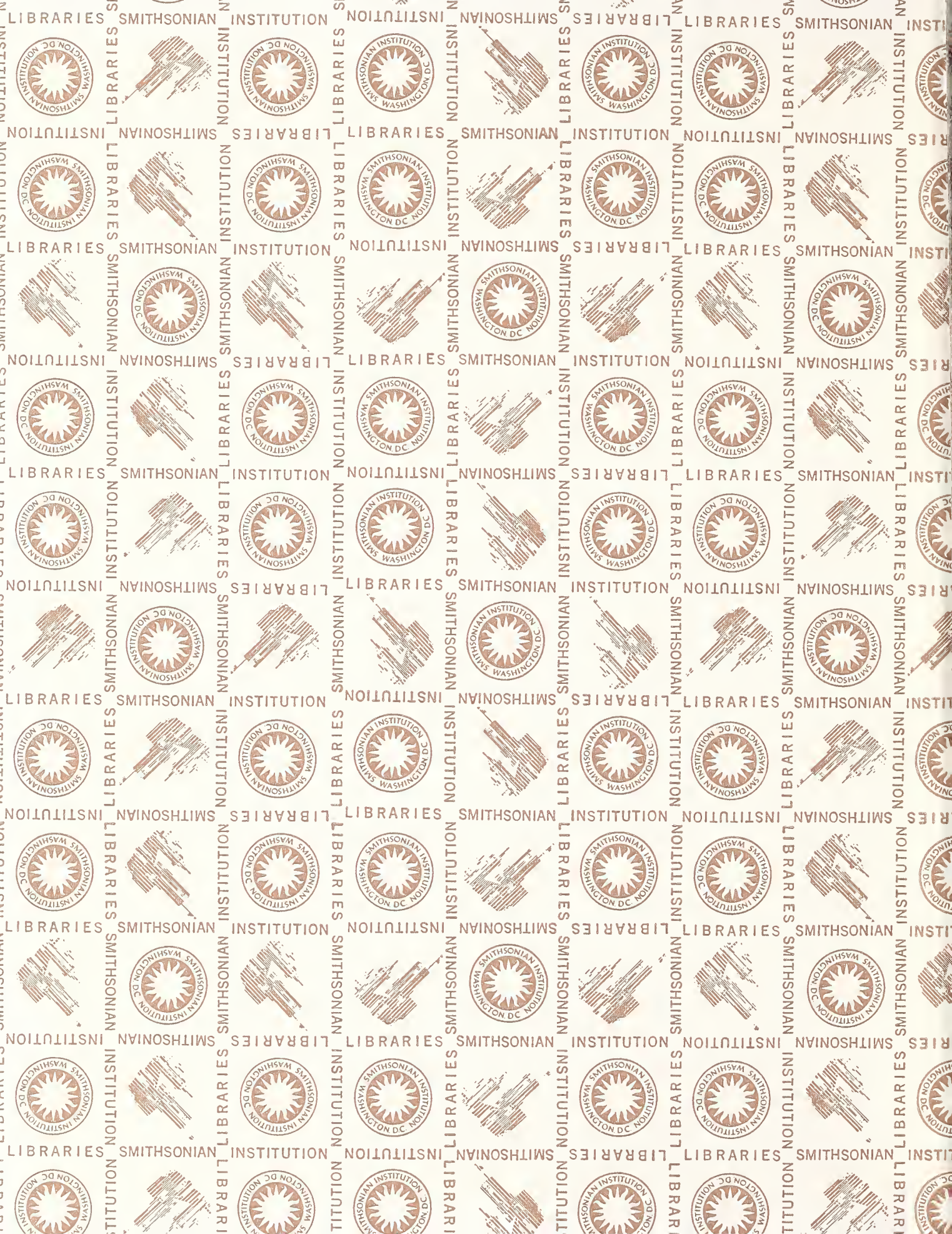
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AMPHIBIANS AND REPTILES

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IN PENNSYLVANIA





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C.J. McCOY

CARNEGIE MUSEUM OF NATURAL HISTORY
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**AMPHIBIANS AND REPTILES IN PENNSYLVANIA:
CHECKLIST, BIBLIOGRAPHY, AND ATLAS
OF DISTRIBUTION**

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Curator, Section of Amphibians and Reptiles



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CONTENTS

Preface	5
Introduction	5
Amphibian and Reptile Type-localities in Pennsylvania	7
Explanation of Species Accounts	8
Sources of Locality Records	9
Excluded and Introduced Species	10
Unverified and Probable Species	11
Species Accounts	11
Acknowledgments	35
References Cited	36
Appendix I (Distribution Maps)	54

PREFACE

Preparation of a review of the amphibians and reptiles of Pennsylvania has long been a goal of herpetology at Carnegie Museum of Natural History. Successive generations of curators have advanced the project, each contributing a measure of data and interpretations. It is tempting to consider Amphibians and Reptiles in Pennsylvania as an end point, and the definitive result of those years of effort. In reality, it is neither definitive nor the end point.

In 1941 M. Graham Netting published a short paper entitled "Our Appalling Ignorance," in which he pointed out the lack of depth in our understanding of even the commonest species of amphibians and reptiles. His cautionary comments apply with special emphasis to works such as *Amphibians and Reptiles in Pennsylvania*, in which the length and breadth dimensions of the data preclude treatment in depth. Much work remains to be done.

During the several years that I have been com-

piling data for this report I have enjoyed the cooperation of innumerable colleagues, associates, and interested citizens of Pennsylvania. Some of these are named, and their contributions recognized, in the Acknowledgments section. Among them are two of my colleagues who deserve special recognition.

Over the years, Roger Conant has been a constant source of specimens, data, constructive comment, and incisive criticism relating to problems in Pennsylvania herpetology. Moreover, he has never let me forget his expectation that his contributions would eventually be put to use. M. Graham Netting initiated the Pennsylvania herpetology project, assigned it to me in my turn, and demonstrated infinite patience at the pace of my progress. To these two colleagues *Amphibians and Reptiles in Pennsylvania* is dedicated.

INTRODUCTION

Herpetology in Pennsylvania began with visits by the European explorer-naturalists who discovered the biological riches of the North American continent. Among the first of these to collect specimens or accounts of Pennsylvania amphibians and reptiles was the Swedish naturalist Per Kalm (1715–1779). Later came the German Johann Schoepff (1752–1800), who obtained the first specimens of *Clemmys guttata* with locality data and the types of *Clemmys muhlenbergi* in Pennsylvania, while serving as surgeon to a Hessian regiment during the American Revolution. Still later, the Frenchman A. M. F. J. Palisot de Beauvois (1752–1820) collected in the vicinity of Philadelphia.

Nearly all the naturalists of this era were Europeans, who owed allegiance to European patrons or institutions. The specimens, notes, and drawings they collected in the New World were returned to Europe for study and publication by European scientists. By the end of 1817 almost a third (24) of the species of Pennsylvania amphibians and reptiles had been discovered and named.

The last decades of the 18th Century, however, brought the beginnings of American natural science. The start of this period was marked by the publication, in 1794, of the first species description in an American journal. Among the earliest writers

of this period in herpetology were the explorer and naturalist William Bartram (1739–1823), best known for his travels in the South, and the Philadelphia physician and professor of natural history Benjamin Smith Barton (1766–1815). Philadelphia was the center of scientific activity in the developing nation. The American Philosophical Society was founded there in 1742, and the Academy of Natural Sciences established in 1812. A remarkably productive group of naturalists assembled in these institutions, and an unparalleled era of descriptive herpetology was launched.

Among the most prominent of the Philadelphia naturalists who worked in herpetology were Charles Alexandre Le Sueur (1778–1846), John Eaton LeConte (1784–1860), Thomas Say (1787–1834), Jacob Green (1790–1841), and Richard Harlan (1796–1843). Between 1818 and 1838, 28 currently recognized forms of Pennsylvania amphibians and reptiles were named, mostly by members of this Philadelphia group. The end of this era was marked by the publication in 1842 of the second edition of "North American Herpetology." This work, a classic synthesis by John Edwards Holbrook (1796–1871), summarized the prodigious accomplishments of the era.

The next phase of Pennsylvania herpetology was

the era of Baird and Cope. Both men were native Pennsylvanians, and they both must be considered among the most prolific and influential herpetologists who ever lived. Spencer Fullerton Baird (1823–1887) was born in Reading and graduated from Dickinson College, to which he subsequently returned as Professor of Natural History. As a young man Baird was an avid field biologist, who made extensive collections of amphibians and reptiles, and other groups, in the mountains and valleys of south-central Pennsylvania. In 1850 Baird was appointed as the first Director of the National Museum of Natural History. His Pennsylvania collections formed part of the nucleus of that institution's great herpetological resources.

Edward Drinker Cope (1840–1897) as a youth collected reptiles and amphibians on the family farm in southeastern Pennsylvania. But Cope did not restrict his interests to herpetology, as he seemed to have an insatiable desire to bring order to all of vertebrate zoology. In later years Cope's attention was drawn increasingly to vertebrate paleontology, fishes, and other fields. But throughout his life Cope returned to studies of Pennsylvania amphibians and reptiles. During the last decade of his life (1892) he published on a small collection of amphibians and reptiles from Franklin, Venango County, that included the undescribed species *Eutaenia* (= *Thamnophis*) *brachystoma*. Cope's monumental contributions "Batrachia of North America" (1889) and "Crocodilians, Lizards and Snakes of North America" (1900), which marked the end of this era, relied heavily on Baird's Pennsylvania collections in the National Museum. During the decades between 1838 and 1900, largely as a result of the work of Baird and Cope, 18 valid taxa of Pennsylvania amphibians and reptiles were described.

The modern era of herpetology in Pennsylvania (1900–present) began with renewed activity by naturalists associated with the Academy of Natural Sciences in Philadelphia. Although Witmer Stone (1866–1939) was primarily an ornithologist, and Henry Weed Fowler (1878–1965) primarily an ichthyologist, they also collected amphibians and reptiles and published various lists and observations. In 1915 Emmett Reid Dunn (1894–1956), then a student at Haverford College, began to publish on the herpetology of Pennsylvania. Although Dunn's professional interests extended far beyond Pennsylvania, he continued to collect, observe, and publish on the local amphibian and reptile fauna, particularly after his return to Haverford in 1929.

Early in this period the Pennsylvania Department of Agriculture sponsored a series of monographs on the amphibians and reptiles of Pennsylvania. These faunal studies, by Harvey Adam Surface (b. 1867), were published in four volumes: "Serpents of Pennsylvania" (1906), "Turtles of Pennsylvania" (1908), "Lizards of Pennsylvania" (1908), and "Amphibians of Pennsylvania" (1913). Although they contain some original observations, and lists of localities from which specimens were examined, these monographs consist largely of uncritical compilations from the literature. Unfortunately, the collections on which they were based have been lost, so accuracy of the identifications and locality data cannot now be verified.

During the early decades of the 20th Century herpetologists became active at many colleges and universities around Pennsylvania. One enduring result of this activity is a series of local faunal lists, which contains most of the published distributional data on Pennsylvania amphibians and reptiles. Two studies of this period had larger pretensions: "The Amphibia of Pennsylvania" (1926) by Norman Hamilton Stewart (1885–1970), and "Reptiles of Lancaster County and the State of Pennsylvania" (1928) by Harry Justin Roddy (1856–1943). Both are incomplete, however, and Roddy's work is flawed by misidentifications and uncritical acceptance of sight records.

Herpetology at Carnegie Museum began with the work of D. A. Atkinson (b. 1875), a Pittsburgh physician and naturalist who was also honorary curator of the Section of Amphibians and Reptiles. In 1925 M. Graham Netting joined the museum staff as its first full-time herpetologist. Netting published many papers on the amphibians and reptiles of Pennsylvania (1927–1944), including several complete faunal lists and keys.

Overlapping Netting's period of activity by a few years was that of Roger Conant, Curator of Reptiles and later Director of the Philadelphia Zoological Garden. Conant produced a number of serious systematic papers on Pennsylvania amphibians and reptiles, and several faunal studies. Working in parallel with Conant, at Carnegie Museum of Natural History, was Neil D. Richmond. Richmond directed an extensive herpetological survey program in the early 1950's that resulted in significant baseline collections from many parts of Pennsylvania.

The modern era of herpetology in Pennsylvania is continuing and growing, with increasing numbers of institutions and individuals becoming involved.

The goal of this inventory is to bring together the scattered distributional and bibliographic information on amphibians and reptiles in Pennsylvania, as a starting point for further studies. It is my hope

that it will both stimulate the interest of amateur and professional herpetologists and students, and point the way to unanswered questions and unsolved problems in Pennsylvania herpetology.

AMPHIBIAN AND REPTILE TYPE-LOCALITIES IN PENNSYLVANIA

Sixty-two nominal taxa of amphibians and reptiles have type-localities in Pennsylvania. Thirty-eight of these were fixed by original designation, and twenty-four by subsequent designation or restriction. In the list of type-localities that follows each name is given in the original combination as proposed, with the current status in parentheses. Those for which the type-locality was subsequently designated or restricted to Pennsylvania are identified with an asterisk (*).

"Pennsylvania"

- Coluber sirtalis* Linnaeus, 1758* (= *Thamnophis s. sirtalis*)
Coluber torquatus Shaw, 1802 (= *Diadophis punctatus edwardsi*)
 Allegheny Co., Allegheny River, Pittsburgh
Triton lateralis Say, 1823 (= *Necturus m. maculosus*)
 Allegheny Co., Ohio River, Pittsburgh
Trionyx annulifer Wied, 1839* (= *Trionyx s. spiniferus*)
 Chester Co., Londongrove
Ambystoma conspersum Cope, 1859 (= *Ambystoma t. tigrinum*)
 Crawford Co., French Creek, near Meadville
Salamandra porphyritica Green, 1827 (= *Gyrinophilus p. porphyriticus*)
 Cumberland Co., Carlisle
Helocaetes feriarum Baird, 1854 (= *Pseudacris triseriata feriarum*)
 Cumberland Co., North Mountain, near Carlisle
Plestiodon anthracinus Baird, 1850 (= *Eumeces a. anthracinus*)
 Cumberland Co., South Mountain, near Carlisle
Pseudotriton montanus Baird, 1850
 Dauphin Co., Harrisburg
Salamandra dorsata Valenciennes, 1854* (= *Eurycea b. bislineata*)
Salamandra haldemani Holbrook, 1840* (= *Eurycea b. bislineata*)
 Indiana Co., Two Lick Hills
Plethodon wehrlei Fowler and Dunn, 1917
 Lancaster Co., Lancaster

- Testudo muhlenbergii* Schoepff, 1801 (= *Clemmys muhlenbergi*)
 Northampton Co., Nazareth
Salamandra melanoleuca Wied, 1865 (= *Plethodon g. glutinosus*)
 Susquehanna County
Desmognathus ochrophaeus Cope, 1859
 Venango Co., near Franklin, Allegheny River
Eutaenia brachystoma Cope, 1892 (= *Thamnophis brachystoma*)
 Venango Co., four miles North of Van
Haldea valeriae pulchra Richmond, 1954 (= *Virginia valeriae pulchra*)
 Washington Co., Canonsburg
Salamandra intermixta Green, 1825 (= *Desmognathus f. fuscus*)
Salamandra jeffersoniana Green, 1827 (= *Ambystoma jeffersonianum*)
 "Broad river emptying into the Delaware at its origin . . . Pennsylvania"
Coluber thraso Harlan, 1835 (= *Heterodon platyrhinos*)
 "Dutotsburg, near Delaware Water Gap, Pennsylvania"
Coluber poecilogaster Wied, 1839 (= *Nerodia s. sipedon*)
 "Marsh on border of Lake Erie"
Testudo geographica Le Sueur, 1817 (= *Graptemys geographica*)
 "Philadelphia," "near Philadelphia," and "vicinity of Philadelphia"
Bufo americanus Holbrook, 1836*
Cenchrus mokeson Daudin, 1803* (= *Agkistrodon contortrix mokeson*)
Coluber amoenus Say, 1825 (= *Carphophis a. amoenus*)
Coluber constrictor Linnaeus, 1758*
Coluber Edwardsii Merrem, 1820* (= *Diadophis punctatus edwardsi*)
Coluber eximius Harlan, 1827* (= *Lampropeltis t. triangulum*)
Coluber heterodon Daudin, 1803* (= *Heterodon platyrhinos*)

- Coluber septemvittatus* Say, 1825 (= *Regina septemvittata*)
Coluber vernalis Harlan, 1827* (= *Opheodrys v. vernalis*)
Emys biguttata Say, 1825* (= *Clemmys muhlenbergi*)
Emys kinosternoides Gray, 1831* (= *Terrapene c. carolina*)
Emys schneideri Schweigger, 1812* (= *Terrapene c. carolina*)
Geoclemmys sebae Gray, 1869* (= *Clemmys guttata*)
Heterodon platyrhinos Latreille, 1801
Kinosternon Doubledayi Gray, 1844* (= *Kinosternon s. subrubrum*)
Kinosternon oblongum Gray, 1844* (= *Kinosternon s. subrubrum*)
Kinosternon guttatum LeConte, 1854* (= *Sternotherus odoratus*)
Lacerta subviolacea Barton, 1804 (= *Ambystoma maculatum*)
Rana flaviviridis Harlan, 1826 (= *Rana clamitans melanota*)
Rana palustris LeConte, 1825*
Rana scapularis Harlan, 1826* (= *Rana catesbeiana*)
Rana utricularius Harlan, 1826*
Salamandra flavissima Harlan, 1826* (= *Eurycea b. bislineata*)
Salamandra picta Harlan, 1825 (= *Desmognathus f. fuscus*)
Salamandra rubra Latreille, 1801* (= *Pseudotriton r. ruber*)
Salamandra venenosa Daudin 1803 (= *Ambystoma maculatum*)
Swanka fasciata Gray, 1869* (= *Kinosternon s. subrubrum*)
Terrapene Boscii Merrem, 1820* (= *Kinosternon s. subrubrum*)
Terrapeue maculata Bell, 1825* (= *Terrapene c. carolina*)
Terrapene nebulosa Bell, 1825* (= *Terrapene c. carolina*)
Testudo clausa Gmelin, 1788* (= *Terrapene c. carolina*)
Testudo glutinata Daudin, 1801* (= *Sternotherus odoratus*)
Testudo guttata Schneider, 1792* (= *Clemmys guttata*)
Testudo incarcerationa Bonnaterre, 1789 (= *Terrapene c. carolina*)
Testudo incarcerationa-striata Bonnaterre, 1789* (= *Terrapene c. carolina*)
Testudo longicauda Shaw, 1831* (= *Chelydra s. serpentina*)
Testudo pensilvanica Gmelin, 1788* (= *Kinosternon s. subrubrum*)
Testudo punctata Schoepff, 1792 (= *Clemmys guttata*)
Testudo subrubra Lacépède, 1788* (= *Kinosternon s. subrubrum*)
 "West Pennsylvania, near the Kiskiminitas River"
Chorophilus feriarus brachyphonus Cope, 1889
 (= *Pseudacris brachyphona*)

EXPLANATION OF SPECIES ACCOUNTS

Seventy-three species of amphibians and reptiles are recognized here as members of Pennsylvania's native herpetofauna. Each of these species has been collected at least once in Pennsylvania, and for each a voucher specimen of undoubted Pennsylvania provenience exists. Other forms are reviewed in the sections on excluded and introduced, or unverified and probable species.

The 73 numbered species accounts contain the following sections:

Common name and scientific name.—Usage, with a few minor exceptions, follows Collins et al. (1978). The sequence of species follows the most recent edition of the North American check list (Schmidt, 1953).

Synonymy.—The first citation in each synonymy is to the original description of the taxon recognized. Following that is a reference to the first use of the name in the current generic

combination. Species-level synonyms having type-localities in Pennsylvania are listed in chronological sequence.

Pennsylvania subspecies.—For each subspecies recognized in Pennsylvania there is a reference to the first use of the trinomial combination. As in the species synonymies, subspecies synonyms with Pennsylvania type-localities are listed in chronological order.

Distribution.—This is a general statement of the distribution of the species in Pennsylvania, in relation to major physiographic features, drainages, or biotic zones.

Status.—The status category adopted by the Committee on Amphibians and Reptiles of Special Concern, Pennsylvania Biological Survey (1981) is given for each species. Species not assigned to a special concern category by the Committee are identified by the statement "not listed." For the listed species five status categories are recognized and defined as follows: *En-*

dangered—species in imminent danger of extirpation throughout their range in Pennsylvania if factors affecting them continue to operate. *Threatened*—species for which the available evidence indicates that they may become endangered or extirpated throughout their range in Pennsylvania within the foreseeable future. *Vulnerable*—species which are potentially at risk because: a) they exist only in restricted geographic areas or habitats, b) their population density is low, or c) they or their habitat are particularly susceptible to exploitation. *Status Undetermined*—species suspected of falling into one of the above categories, but for which available data are not adequate to make a status decision. *Recently Extirpated*—species that have disappeared from Pennsylvania since 1600.

Remarks.—This section includes miscellaneous data on the species pertinent to distribution or status, comments on systematic or distributional problems, and citation of locality records not spotted on the distribution map.

References.—The numbered list of references cited (page 36) includes complete bibliographic data for all published references cited in the inventory. The References section of each species account lists the numbers of the works that pertain to the species, thus it is an index to the bibliography. Although references cited in the synonymy also appear in the numbered bibliography, they may not be cited by number in the References section.

The bibliography consists principally of a review of the scientific and technical literature through 1980. No attempt was made to systematically search popular periodicals for references to Pennsylvania amphibians and reptiles. A few articles from popular publications are cited, usually because they have previously been cited elsewhere in the scientific literature, or because they complete the representation of contributions by a prolific writer on Pennsylvania herpetology.

As an exception to this general plan, the bibliography contains references to numerous articles in *Pennsylvania Angler* (abbreviated PAN) and *Pennsylvania Game News* (abbreviated PGN) the monthly publications of, respectively, the Pennsylvania Fish Commission and the Pennsylvania Game Commission. Articles

from these two popular publications have been included because: a) they are rich sources of anecdotal information on the ecology and behavior of Pennsylvania amphibians and reptiles, b) they are mostly authoritatively written and well-illustrated, and c) the periodicals in which they appear are somewhat archival in nature and generally accessible in Pennsylvania library collections.

References to articles "published" in newsletters and other media of local or limited distribution, to ephemeral periodicals, and to manuscript theses and dissertations have been excluded, primarily because these sources are either not archival or not generally accessible.

While recognizing that a complete bibliography on the subject is perhaps impossible to achieve, I intend to continue gathering pertinent references on Pennsylvania herpetology, and I solicit the assistance of colleagues in suggesting additions.

Distribution Maps.—A spot distribution map is provided for each of the 73 recognized Pennsylvania species. The maps were prepared by plotting localities from museum records and literature sources on base maps of Pennsylvania showing only state and county boundaries. The spots used are relatively large (± 5 miles diameter to scale), but are centered as precisely as possible on the exact locality represented. The objective of the distribution maps is not to provide a guide to collecting localities, but rather to give an overall visual summary of distribution that can be related to geography and physiography on a broad scale.

Three kinds of symbols are used on the maps—a solid black dot denotes a locality based on a museum record; a hollow dot indicates a locality from the literature; a hollow circle with a dot in the center marks the type-locality of a recognized species or subspecies. No attempt was made to distinctively mark the numerous type-localities of synonyms.

For some extremely well-collected areas the number and proximity of locality records for common species made graphic representation of all records impossible. Dense clusters of dots, therefore, usually represent only part of the available locality data.

SOURCES OF LOCALITY RECORDS

The largest collection of Pennsylvania amphibians and reptiles in existence is in the Section of Amphibians and Reptiles, Carnegie Museum of Natural History. It was the principal source of locality records. Several other major collections were consulted for Pennsylvania records, as were some of the smaller collections at various Pennsylvania universities. No attempt was made to canvass every collection in the Commonwealth. It is hoped that the custodians of these collections, which undoubtedly contain significant locality data, will make these records available for future revision of the Pennsylvania distribution maps.

The museum specimens plotted on the distribution maps were not all examined, but identifications were verified when questionable.

The collections from which locality records were obtained are as follows:

AMNH—American Museum of Natural History, New York
ANSP—Academy of Natural Sciences, Philadelphia

CM—Carnegie Museum of Natural History, Pittsburgh

CU—Cornell University, Ithaca, New York

FMNH—Field Museum, Chicago

IUP—Indiana University of Pennsylvania, Indiana, Pennsylvania

LEHIGH—Lehigh University, Bethlehem, Pennsylvania

MCZ—Museum of Comparative Zoology, Harvard University, Cambridge, Massachusetts

NMC—National Museum of Natural Sciences, Ottawa

PSU—Pennsylvania State University, University Park, Pennsylvania

RH—Richard Highton Collection (to be deposited in USNM)

UMMZ—Museum of Zoology, University of Michigan, Ann Arbor

USNM—National Museum of Natural History, Smithsonian Institution, Washington, D.C.

WFW—Wayne F. Weller Collection (to be deposited in NMC)

EXCLUDED AND INTRODUCED SPECIES

Blackbellied Salamander (*Desmognathus quadramaculatus*).—This species was reported by Holbrook (1840:121) as “an inhabitant of Pennsylvania, from which state I have received living specimens.” It was also mentioned for Pennsylvania by Holbrook (1842) and DeKay (1842). Dunn (1926:73) cited USNM 3883 from “Meadville,” and ANSP 14001 from “Pennsylvania,” but noted “these are dubious.” Adler (1976) noted that Holbrook’s *D. quadramaculatus* was a composite of *D. fuscus*, *D. quadramaculatus*, and *D. auriculatus*. *Desmognathus quadramaculatus* occurs no closer to Pennsylvania than the southernmost part of West Virginia.

Zigzag Salamander (*Plethodon dorsalis*).—This midwestern species was reported by Cope (1892) from Franklin, Venango Co. Dunn (1918) suggested that the specimen might have been *P. wehrlei*, but the record persisted through several editions of the Check List (Stejneger and Barbour, 1933; 1939; 1943). Grobman (1944) stated that the record was in error, but did not speculate on the identity of Cope’s material. It seems clear that whatever the specimens were, they were not *P. dorsalis*.

Cave Salamander (*Eurycea lucifuga*).—Mohr (1937) reported the Cave Salamander from Meadville, Crawford Co. The specimen cited (USNM 68359), however, is not a salamander (R. Crombie, personal communication). *Eurycea lucifuga* is known to occur no farther north than eastern West Virginia and northern Virginia.

Diamondback Terrapin (*Malaclemys terrapin*).—Surface (1908) reported the Diamondback Terrapin as a species that “may have lived at one time in the southeastern corner of Pennsylvania,” but there is no evidence that *Malaclemys* ever occurred in Pennsylvania. In 1966 Roger Conant sent me photographs of a specimen of *Malaclemys terrapin* from Tinicum Marsh, Delaware County. It was his opinion, and I agree, that the specimen was an escaped or released captive. The remote possibility exists that an occasional waif might be found in the lower Delaware River.

False Map Turtle (*Graptemys pseudogeographica*).—Following DeKay’s (1842) report of the species in Lake Erie, Surface (1908) listed the False Map Turtle for Pennsylvania. *Graptemys pseudogeographica* does not occur naturally in Lake Erie, nor anywhere else in Pennsylvania waters.

River Cooter (*Pseudemys concinna*).—This southern species was listed, as “*Pseudemys hieroglyphica*,” by Surface (1908). It does not occur in Pennsylvania.

American Alligator (*Alligator mississippiensis*).—A number of escaped alligators have been taken in Pennsylvania waters (Anon., 1938a; Anon., 1939m). There is no evidence that a population could become established in Pennsylvania, but the species is mentioned here because of the potential for long-term survival of feral individuals (Barton, 1955).

Italian Wall Lizard (*Podarcis sicula*).—This European species was introduced and became established in Philadelphia (Kaufeld, 1931), and the population apparently persisted for a number of years (Conant, 1959). None, however, have been found recently (John D. Groves, personal communication).

Six-lined Racerunner (*Cnemidophorus sexlineatus*).—This species was listed by Surface (1908), and cited from the “lower Susquehanna Valley” by Roddy (1928). These reports were rejected by Netting (1930). There is no evidence of natural occurrence of *C. sexlineatus* in Pennsylvania.

Glossy Crayfish Snake (*Regina rigida*).—*Regina rigida* was first reported from Pennsylvania by Holbrook (1842) and DeKay (1842), and the report was reiterated by Cope (1875, 1891), Garman (1884), Brown (1901), and Surface (1906). Roddy (1928) characteristically embellished the error by adding notes on the distribution and abundance of *R. rigida* in “valleys of the lower Susquehanna and tributaries.” *Regina rigida* is not known to occur in Pennsylvania, nor is it found farther north than New Kent County, Virginia.

Plainbellied Water Snake (*Nerodia erythrogaster*).—Confusion about the identity and differentiating characters of *N. erythrogaster* led some authors to erroneously cite the species from Pennsylvania, while others were misled by incorrect locality data (Roddy, 1928; Dunn and Allen, 1935; Netting, 1935; 1936a; 1939b; 1939d). Conant (1943b) demonstrated that the Pennsylvania records were based on either misidentified *N. sipedon* or mislabelled specimens. Cooper (1969) reviewed the northeasternmost localities for *N. erythrogaster*, and commented on the possibility that the species may once have occurred in Pennsylvania.

Rough Earth Snake (*Virginia striatula*).—Although tentatively reported from Pennsylvania by Surface (1906), and with greater confidence by Roddy (1928), there is no evidence that this species is a member of the Pennsylvania fauna (McCauley, 1945).

Fox Snake (*Elaphe vulpina*).—This species was listed from Pennsylvania by Surface (1906), and cited as “occasionally observed near the Ohio-Pennsylvania line” by Roddy (1928). *Elaphe vulpina* does not occur in Pennsylvania, and approaches no closer than the middle of Ohio along the south shore of Lake Erie, or directly across the lake on the north shore.

Northern Pine Snake (*Pituophis m. melanoleucus*).—Records of this species in Pennsylvania rest on the acid comment of Holbrook (1840) that “Palisot de Beauvois never saw it in Pennsylvania where it is common enough,” which became the authority for subsequent reports (Garman, 1884; Surface, 1906; Roddy, 1928). I regard Holbrook’s statement as erroneous, and Palisot de Beauvois’ observation as correct.

Mole Kingsnake (*Lampropeltis calligaster rhombomaculata*).—A specimen reported from near Erie (Brown, 1902) was “obviously an escape.”

Cottonmouth (*Agkistrodon piscivorus*).—A brief mention of the Cottonmouth from “southwestern Pennsylvania” (Barrett, 1944), is cited here only because it provides another opportunity to refute a persistent myth that the venomous Cottonmouth occurs in Pennsylvania.

UNVERIFIED AND PROBABLE SPECIES

Pine Barrens Treefrog (*Hyla andersoni*).—*Hyla andersoni* has been repeatedly mentioned as a member of the Pennsylvania fauna, despite the fact that no specimen of undoubted Pennsylvania origin exists (Palmer, 1908; Stejneger and Barbour, 1933; Netting, 1933a; Baldauf, 1943; Bury, Dodd and Fellers, 1980). I consider *Hyla andersoni* a probable but unverified species for Pennsylvania, largely on the basis of the description of the collection of a specimen in a relictual white cedar swamp near Bryn Mawr, Delaware County (Palmer, 1908; Fowler, 1915). Although Gosner and Black (1967) questioned this report, I find it compellingly convincing. Obviously, any population at that location has long since been extirpated.

Hyla andersoni is an elusive species that occurs in disjunct, isolated colonies outside the New Jersey Pine Barrens. It should be sought in southeastern Pennsylvania by collectors who are familiar with its breeding and habitat requirements, and its call.

Ground Skink (*Scincella lateralis*).—The Ground Skink was first listed for Pennsylvania (Surface, 1908) because of a supposed New York record (Reed and Wright, 1909), which proved to be a misidentified *Eumeces anthracinus* (Bishop, 1918). Roddy (1928) reported observing *Scincella* near Holtwood, Lancas-

ter County. Netting (1930) and McCauley (1945) discounted Pennsylvania *Scincella* records, but the most recent review of the species (Brooks, 1975) indicates that the range extends very near the southern border of Pennsylvania.

Corn Snake (*Elaphe g. guttata*).—Grogan (1971) reported this southern species from localities in the Valley and Ridge Province in West Virginia and Maryland, within 10 miles of the Pennsylvania border.

Eastern Kingsnake (*Lampropeltis g. getulus*).—The Eastern Kingsnake has generally been listed as a member of the Pennsylvania herpetofauna since Surface (1906). The available evidence was reviewed by Netting (1936b), and nothing has been added in the ensuing 45 years. No specimen from Pennsylvania exists.

Three localities have been cited in the literature—Susquehanna Valley below the mouth of Conestoga Creek (Roddy, 1928); Safe Harbor, Lancaster Co. (Netting, 1936b); Jennersville, Chester Co. (Cope in Dunn, 1940a). I regard *Lampropeltis getulus* as a probable but unverified member of the Pennsylvania snake fauna.

SPECIES ACCOUNTS

1. EASTERN HELLBENDER

CRYPTOBRANCHUS A. ALLEGANIENSIS

(DAUDIN)

SYNONYMY:

Salamandra alleganiensis Daudin, 1803c:231. Type-locality, North Toe River, Mitchell County, North Carolina (Harper, 1940:721).

Cryptobranchus alleghaniensis: Van der Hoeven, 1837:384.

PENNSYLVANIA SUBSPECIES:

Cryptobranchus alleganiensis alleganiensis: Schmidt, 1953:11.

DISTRIBUTION: Throughout the Ohio and Susquehanna drainages, in streams from moderate-sized tributaries to main river channels, but most commonly in areas with rocky substrate.

STATUS: Not listed.

REMARKS: Hellbenders are abundant in some tributary streams and the upper reaches of both the Allegheny and Susquehanna rivers. They have been extirpated from areas where the principal food organism, crayfish, have been destroyed by chemical pollution from acid mine drainage or industrial effluents. Hellbender populations in lower sections of the Ohio and Susquehanna rivers (in Pennsylvania)

have probably also been extirpated. There are no recent records from either of these major rivers.

Judging by the quantities of *Cryptobranchus* bones found in Indian middens excavated along the Ohio River (Lang, 1968), the hellbender was abundant in the river and was extensively utilized as a food resource by Woodland tribes.

Records of *Cryptobranchus* from the Great Lakes, which have persisted in the literature (Stejneger and Barbour, 1917), are in error. They result from the early confusion of *Cryptobranchus* with *Necturus* (Mitchill, 1822; 1824), as pointed out by Harlan (1825a).

REFERENCES: 8; 30; 36; 46; 50; 70; 74; 107; 115; 136; 151; 162; 168; 172; 173; 187; 202; 209; 222; 223; 247; 274; 294; 301; 311; 370; 375; 381; 401; 410; 424; 460; 474; 475; 481; 488; 495; 507; 513; 514; 533; 549; 575; 584; 596; 642; 668; 691; 697; 699; 700; 703; 709; 710; 715; 720; 730; 752; 756; 758; 759; 760; 761; 778; 793; 815; 819; 822; 823; 824; 825; 827; 833; 840; 845; 850; 856; 858; 859; 860; 862; 863; 865; 872; 879; 883; 887; 899; 901; 911; 932a; 943.

2. MUDPUPPY

NECTURUS M. MACULOSUS (RAFINESQUE)

SYNONYMY:

Siren maculosa Rafinesque, 1818b:40. Type-locality, "Ohio River."

Necturus maculosus: Rafinesque, 1820b:4.

PENNSYLVANIA SUBSPECIES:

Necturus maculosus maculosus: Brimley, 1924:167.
Triton lateralis Say, 1823:5. Type-locality, "Allegheny River, Pittsburgh, Pennsylvania."

DISTRIBUTION: Lake Erie and the Ohio River drainage (see remarks).

STATUS: Not listed.

REMARKS: *Necturus maculosus* is widely distributed in both the tributaries and the main stream of the Allegheny River, and has been collected in the Shenango River, a tributary of the Beaver River. It is not recorded from the southern branches of the Ohio River (Monongahela River, Youghiogheny River) in Pennsylvania, but it occurs in the Monongahela Drainage in adjacent parts of West Virginia.

Literature records from Blair County (Yoder, 1940) and Dauphin County (Surface, 1913), both in the Susquehanna Drainage, require verification. These reports were possibly based on large larvae of *Gyrinophilus porphyriticus*, which have a superficial resemblance to *Necturus*.

The presence of *Necturus* in the Delaware Drainage may have resulted from a sequence of faunal exchanges via the 19th Century New York canal system. Marshall (1892) reported *Necturus* from the Hudson River, and suggested that the salamanders came from either Lake Erie or Lake Champlain, both of which had canal connections with the Hudson. He also predicted that *Necturus* would eventually reach the Delaware River through the Delaware and Hudson Canal (Port Jervis to Kingston). Fowler (1900) accepted this as a logical explanation for the origin of the Delaware County *Necturus*.

REFERENCES: 125; 136; 168; 169; 172; 173; 198; 274; 301; 367; 375; 398; 406; 410; 474; 479; 495; 504; 513; 514; 519; 548; 549; 622; 651; 652; 688; 697; 699; 700; 703; 709; 710; 715; 717; 748; 749; 756; 761; 784; 793; 819; 826; 842; 845; 856; 857; 858; 859; 860; 862; 865; 872; 879; 883; 901; 912; 943; 944.

3. JEFFERSON SALAMANDER

AMBYSTOMA JEFFERSONIANUM (GREEN)

SYNONYMY:

Salamandra jeffersoniana Green, 1827:4. Type-locality, "Near Chartier's Creek in the vicinity of Jefferson College at Cannonsburg, [Washington County] Pennsylvania."

Ambystoma jeffersoniana: Baird, 1850a:283.

DISTRIBUTION: Probably statewide (see remarks).

STATUS: Not listed.

REMARKS: Although the species is expected to occur in every county in Pennsylvania, locality records for *Ambystoma jeffersonianum* are few and scattered. Populations are localized around suitable breeding ponds; draining or pollution of a breeding pond will result in extirpation of the local population. The very early spring breeding season, and extremely secretive habits of adults during the remainder of the year, probably account for the paucity of locality records.

REFERENCES: 125; 131; 172; 173; 187; 224; 266; 269; 274; 279; 301; 375; 410; 426; 453; 479; 480; 492; 514; 549; 583; 627; 659; 660; 661; 663; 697; 699; 700; 709; 710; 715; 730; 793; 850; 856; 857; 858; 859; 860; 862; 863; 865; 872; 883; 909; 910; 943.

4. SPOTTED SALAMANDER

AMBYSTOMA MACULATUM (SHAW)

SYNONYMY:

Lacerta maculata Shaw, 1802:304. Type-locality, "Carolina," restricted to the vicinity of Charleston, South Carolina (Schmidt, 1953:20).

Salamandra venenosa Daudin, 1803c:229. Type-locality, "Philadelphia [Philadelphia County, Pennsylvania] . . . à peu de distance de cette ville."

Lacerta subviolacea Barton, 1804:109. Type-locality, "a few miles from the city of Philadelphia [Philadelphia County, Pennsylvania]."

Ambystoma maculatum: Stejneger, 1902a:239.

DISTRIBUTION: Statewide.

STATUS: Not listed.

REFERENCES: 16; 125; 131; 133; 150; 173; 266; 269; 274; 294; 318; 375; 381; 406; 410; 426; 427; 428; 453; 467; 479; 480; 492; 514; 547; 549; 558; 583; 627; 635; 659; 660; 661; 663; 689; 697; 699; 700; 703; 709; 710; 715; 730; 778; 782; 793; 813; 819; 845; 850; 852; 862; 863; 865; 872; 883; 943; 944.

5. MARBLED SALAMANDER

AMBYSTOMA OPACUM (GRAVENHORST)

SYNONYMY:

Salamandra opaca Gravenhorst, 1807:431. Type-locality, "New York" (see remarks).

Ambystoma opaca: Baird, 1850a:283.

DISTRIBUTION: Southeastern Pennsylvania, mainly

east of the Allegheny Front (see remarks), north to Centre, Wyoming, and Pike counties, and extreme northwestern Pennsylvania.

STATUS: Not listed.

REMARKS: Most of the Pennsylvania populations of *Ambystoma opacum* occur east of the Allegheny Front, which apparently constitutes a major barrier to the westward distribution of this species. There are very few records of *A. opacum* west of the crest of Allegheny Mountain—the Ligonier Valley, Westmoreland Co., central Indiana Co., and Crawford Co. in northwestern Pennsylvania. In the notes of D. A. Atkinson there is reference to a specimen taken in Allegheny Co., on Chartiers Creek, probably in 1899, and one from Butler Co. collected in 1904 or 1905. These specimens cannot now be found, and the records are unsupported by recent collections.

Cope (1867*b*) cited a specimen of *A. opacum* from Carlisle (Cumberland Co.) erroneously as the "Type."

Populations of *Ambystoma opacum* in Pennsylvania, near the northern limit of the species' range, are scattered and localized, and adults are secretive outside the breeding season, perhaps accounting for the scarcity of vouchered locality records.

REFERENCES: 15; 125; 131; 163; 173; 187; 269; 272; 274; 375; 412; 443; 500; 514; 547; 558; 583; 659; 660; 663; 664; 668; 697; 699; 700; 703; 709; 710; 715; 730; 778; 791; 819; 850; 862; 872.

6. EASTERN TIGER SALAMANDER *AMBYSTOMA T. TIGRINUM* (GREEN)

SYNONYMY:

Salamandra tigrina Green, 1825*b*:116. Type-locality, "near Moore's town [=Moorestown, Burlington Co.] in New Jersey."

Ambystoma tigrina: Baird, 1850*a*:284.

PENNSYLVANIA SUBSPECIES:

Ambystoma tigrinum tigrinum: Dunn, 1940*b*:156.

Ambystoma conspersum Cope, 1859*a*:123. Type-locality, "Londongrove, Chester Co., Pennsylvania."

DISTRIBUTION: Extreme southeastern Pennsylvania?

STATUS: Recently extirpated?

REMARKS: Netting (1938) presented a thorough review of the literature on *A. tigrinum* in Pennsyl-

vania. He rejected all records except those from Allegheny Co. (CM 10431–10434, Wexford; AMNH 1846, Pittsburgh), and Chester Co. (ANSP 10589, Londongrove, the holotype of *A. conspersum* Cope). In a later contribution (Netting, 1946), he expressed skepticism about the Allegheny Co. records and I concur. The Carnegie Museum specimens may have been mislabelled, and the larval specimen from Pittsburgh (AMNH 1846), collected by Maximilian in 1834, is so poorly preserved that any identification must be regarded as tentative.

Ambystoma tigrinum has not been rediscovered in Allegheny County, one of the most thoroughly-collected areas in Pennsylvania. Moreover, the nearest localities for *A. tigrinum* are hundreds of miles to the west, in central Ohio.

The record from Londongrove, Chester Co., however, is zoogeographically plausible, and the locality data appear unimpeachable. In 1973 H. W. Campbell, who is familiar with the special habitat requirements of *A. tigrinum* in the Maryland coastal plain, searched the Londongrove area for possible *A. tigrinum* sites. He concluded that the area is at least potentially suitable for *Ambystoma tigrinum*, and that further investigation is warranted.

REFERENCES: 125; 173; 261; 266; 269; 272; 274; 324; 325; 375; 380; 410; 424; 429; 452; 500; 514; 660; 697; 700; 707; 709; 710; 715; 793; 856; 859; 862; 865; 872; 943.

7. RED-SPOTTED NEWT *NOTOPHTHALMUS V. VIRIDESCENS* (RAFINESQUE)

SYNONYMY:

Triturus viridescens Rafinesque, 1820*b*:5. Type-locality, "Lake George, Lake Champlain."

Notophthalmus viridescens: Baird, 1850*a*:284.

PENNSYLVANIA SUBSPECIES:

Diemictylus viridescens viridescens: Wolterstorff, 1914:1.

DISTRIBUTION: Statewide.

STATUS: Not listed.

REFERENCES: 5; 125; 131; 158; 165; 166; 173; 187; 205; 227; 228; 229; 230; 231; 239; 274; 302; 318; 364; 365; 366; 376; 401; 406; 410; 466; 470; 492; 514; 520; 524; 534; 535; 536; 537; 538; 539; 546; 549; 552; 554; 558; 565; 575; 577; 583; 592; 627; 635; 638; 659; 663; 668; 689; 697; 699; 700; 703; 709; 710; 715; 721; 728; 730; 738; 740; 750; 767; 782; 819; 843; 845; 850; 862; 865; 872; 879; 883; 901; 908; 933; 934; 943; 944.

8. NORTHERN DUSKY SALAMANDER
DESMOGNATHUS F. FUSCUS (RAFINESQUE)

SYNONYMY:

Salamandra fusca Green, 1818:357. Preoccupied.
Triton fuscus Rafinesque, 1820b:4. Type-locality,
"northern parts of the State of New York."
Desmognathus fuscus: Baird, 1850a:285.

PENNSYLVANIA SUBSPECIES:

Desmognathus fuscus fuscus: Cope, 1889b:194.
Salamandra picta Harlan, 1825c:136. Type-locality,
"vicinity of Philadelphia."
Salamandra intermixta Green, 1825a:159. Type-locality,
"Jefferson College [=Canonsburg, Washington Co.], Pennsylvania."

DISTRIBUTION: Statewide.

STATUS: Not listed.

REFERENCES: 125; 131; 132; 139; 140; 141; 158; 163; 168; 172; 173; 174; 187; 205; 207; 239; 270; 274; 295; 301; 312; 317; 318; 321; 324; 364; 375; 387; 400; 401; 406; 408; 410; 450; 451; 453; 465; 468; 470; 476; 479; 480; 483; 509; 514; 520; 549; 553; 558; 571a; 575; 583; 586; 587; 588; 627; 635a; 659; 663; 664; 689; 697; 699; 700; 703; 709; 710; 715; 722; 730; 750; 793; 819; 841; 845; 850; 861; 862; 865; 872; 879; 883; 943; 944.

9. APPALACHIAN SEAL SALAMANDER
DESMOGNATHUS M. MONTICOLA DUNN

SYNONYMY:

Desmognathus monticola Dunn, 1916a:73. Type-locality, "Elk Lodge Lake, near Brevard, North Carolina."

PENNSYLVANIA SUBSPECIES:

Desmognathus monticola monticola: Hoffman, 1951:251.

DISTRIBUTION: Western slopes of Allegheny Mountains, from the crest of Laurel Hill westward, north to southern Clarion County, and west to southeastern Butler, eastern Allegheny, and eastern Greene counties (see remarks).

STATUS: Not listed.

REMARKS: The apparent abrupt range limit of *D. monticola* at the crest of Laurel Hill requires further investigation. There are two recorded localities in southern Somerset County, along the Maryland border east of Laurel Hill, but the species appears to be absent from the Somerset Plateau. Popula-

tions west of the mountains, in Armstrong, Butler, Allegheny, and Greene counties, occur in spring runs in deep, heavily shaded ravines along the major river valleys (A. F. Mainz, personal communication).

Because of nomenclatural confusion (Grobman, 1945) this species was for many years referred to by the name *Desmognathus phoca* (Matthes).

REFERENCES: 173; 270; 272; 274; 295; 314; 321; 376; 457; 509; 514; 542; 586; 697; 699; 700; 703; 709; 710; 715; 793; 819; 857; 858; 859; 860; 872.

10. MOUNTAIN DUSKY SALAMANDER
DESMOGNATHUS OCHROPHAEUS COPE

SYNONYMY:

Desmognathus ochrophaeus Cope, 1859a:124. Type-locality, "Susquehanna County, Pennsylvania."

DISTRIBUTION: Throughout western Pennsylvania, the Allegheny Mountains, northern Pennsylvania and the Pocono Mountains; a few scattered localities in the Valley and Ridge Section. Absent from southeastern Pennsylvania (see remarks).

STATUS: Not listed.

REMARKS: The few localities in the Valley and Ridge Section, in Fulton and Franklin counties, should be re-investigated. Records from Dauphin Co. (USNM) and Union Co. (Pawling, 1939) are possibly based on misidentifications.

The Delaware County population may result from an introduction. Tilley (1973) verified the identification of specimens from this site (CM 36848). R. Conant (personal communication) visited the locality and confirmed that it might be suitable for survival of introduced *Desmognathus ochrophaeus*.

REFERENCES: 168; 171; 172; 173; 174; 239; 247; 261; 270; 272; 274; 279; 295; 317; 318; 321; 375; 399; 410; 465; 514; 553; 571a; 586; 635a; 659; 689; 697; 699; 700; 703; 709; 710; 715; 730; 793; 819; 850; 856; 857; 858; 859; 860; 861; 862; 865; 872; 879; 883; 896; 943; 944.

11. REDBACKED SALAMANDER
PLETHODON CINEREUS (GREEN)

SYNONYMY:

Salamandra cinerea Green, 1818:356-357. Type-locality, "Newjersey," restricted to "near Princeton?" by Fowler (1906d:57).

Plethodon cinereus: Tschudi, 1838:92.

DISTRIBUTION: Statewide.

STATUS: Not listed.

REFERENCES: 125; 131; 158; 168; 172; 173; 205; 206; 207; 239; 274; 277; 299; 312; 318; 321; 324; 368; 375; 401; 402; 406; 408; 410; 424; 450; 456; 466; 468; 470; 492; 514; 520; 525; 527; 528; 530; 548; 549; 558; 575; 581; 617; 627; 635a; 659; 662; 663; 667; 668; 670; 697; 699; 700; 703; 709; 710; 715; 730; 778; 819; 837; 850; 861; 862; 865; 872; 873; 879; 883; 901; 905; 923; 943.

12. SLIMY SALAMANDER

PLETHODON G. GLUTINOSUS (GREEN)

SYNONYMY:

Salamandra glutinosa Green, 1818:357. Type-locality, "vicinity of Princeton, New Jersey."

Plethodon glutinosus: Tschudi, 1838:92.

PENNSYLVANIA SUBSPECIES:

Plethodon glutinosus glutinosus: Dunn, 1920:131.

Salamandra melanoleuca Wied, 1865:130. Type-locality, "Nazareth, [Northampton Co.] Pennsylvania."

DISTRIBUTION: Statewide.

STATUS: Not listed.

REFERENCES: 125; 131; 158; 168; 173; 187; 205; 207; 239; 259; 266; 274; 277; 299; 301; 319; 321; 375; 401; 406; 410; 450; 453; 456; 466; 470; 479; 500; 514; 520; 525; 526; 528; 549; 558; 575; 583; 592; 627; 635a; 659; 662; 663; 667; 668; 689; 697; 699; 700; 703; 704; 709; 710; 715; 725; 730; 793; 804; 819; 845; 850; 862; 865; 872; 883; 905; 929; 943; 944.

13. VALLEY AND RIDGE SALAMANDER

PLETHODON HOFFMANI HIGHTON

SYNONYMY:

Plethodon hoffmani Highton, 1971:151. Type-locality, "Clifton Forge, Allegheny County, Virginia."

DISTRIBUTION: The Valley and Ridge Section, from southeastern Somerset, Bedford, Fulton, and western Franklin counties northward, west of the Susquehanna River, to Cameron County. Scattered localities lie west of Allegheny Mountain in Clearfield, Jefferson, Indiana, Armstrong, Westmoreland, and Fayette counties (see remarks).

STATUS: Not listed.

REMARKS: The ridge of Allegheny Mountain sharply defines the western edge of the range of *Plethodon hoffmani* in the Valley and Ridge Section. North-

ward, however, the distribution penetrates this barrier, perhaps *via* the valley of the West Branch of the Susquehanna. Scattered populations occur from this point south and west into northern Fayette County, approaching but not contacting the range of *Plethodon richmondi*.

References to *Plethodon richmondi* in Pennsylvania published before 1971 refer to a composite of *P. richmondi* and *P. hoffmani*, and can be correctly attributed to species only if locality data are cited. The photograph of "*Plethodon richmondi*" from Bedford Co., Pennsylvania in Minton (1972:62, Pl. IX) is *P. hoffmani*.

REFERENCES: 17; 173; 500; 514; 525; 528; 529; 584; 585; 628; 650; 708; 710; 715; 716; 763; 793; 859; 861; 944.

14. RAVINE SALAMANDER

PLETHODON RICHMONDI NETTING AND MITTLEMAN

SYNONYMY:

Plethodon richmondi Netting and Mittleman, 1938:288. Type-locality, "Huntington, Cabell Co., West Virginia."

DISTRIBUTION: Extreme southwestern Pennsylvania, north to Mercer County and east to Allegheny and western Fayette counties.

STATUS: Not listed.

REMARKS: Most of the published references to "*Plethodon richmondi*" in Pennsylvania refer either to *P. hoffmani* or to a composite of *P. hoffmani* and *P. richmondi*. Pre-1971 literature on "*P. richmondi*" in references cited has been allocated to species where possible.

REFERENCES: 173; 376; 456; 514; 525; 528; 531; 708; 709; 710; 715; 716; 793; 859; 860.

15. WEHRLE'S SALAMANDER

PLETHODON WEHRLEI FOWLER AND DUNN

SYNONYMY:

Plethodon wehrlei Fowler and Dunn, 1917:23.

Type-locality, "Two Lick Hills, Indiana County, Pennsylvania."

DISTRIBUTION: The Allegheny Mountains and Allegheny Plateau, west-central Pennsylvania, from Greene, Fayette, and Somerset counties in the south to Warren, McKean, Potter, Tioga, and Bradford counties in the north (see remarks).

STATUS: Not listed.

REMARKS: One of the paratypes of *P. wehrlei*, from Tuscarora, Juniata Co., is a specimen of *P. glutinosus* (Netting, 1936e). A published record from Mercer Co. (Lachner, 1942) was also based on a misidentified specimen of *P. glutinosus* (Highton, 1962a:322). Dunn (1918) suggested that Cope's (1892) record of *Plethodon cinereus dorsalis* from Franklin, Venango Co., might be *P. wehrlei*, but the nearest confirmed *wehrlei* locality is in eastern Clarion Co. (Sollberger field notes in CM).

REFERENCES: 172; 173; 316; 321; 327; 376; 410; 456; 464; 466; 500; 514; 525; 528; 543; 592; 697; 699; 700; 703; 704; 706; 709; 710; 715; 793; 819; 856; 857; 858; 859; 860; 862.

16. FOUR-TOED SALAMANDER

HEMIDACTYLIUM SCUTATUM (TEMMINCK AND SCHLEGEL)

SYNONYMY:

Salamandra scutata Temminck and Schlegel, 1838:119. Type-locality, "Nashville, [Davidson Co.] Tennessee."

Hemidactylum scutatum; Tschudi, 1838:59.

DISTRIBUTION: Probably statewide (see remarks).

STATUS: Not listed.

REMARKS: *Hemidactylum scutatum* probably occurs in every county in Pennsylvania, but its secretive habits and special habitat requirements (forest pools, bogs) make collection records scarce. Many of the reported populations may no longer be extant. Minton (1972:60) pointed out that *Hemidactylum* disappears rapidly in areas of agriculture and urbanization.

Cope (1860d) reported *Hemidactylum* from Chester Co., without a specific locality.

REFERENCES: 125; 131; 158; 173; 205; 266; 274; 318; 408; 410; 492; 514; 520; 558; 584; 627; 659; 663; 680; 697; 699; 700; 709; 710; 715; 730; 819; 845; 862; 863; 872; 883; 895; 905; 939; 943.

17. NORTHERN SPRING SALAMANDER

GYRINOPHILUS P. PORPHYRITICUS (GREEN)

SYNONYMY:

Salamandra porphyritica Green, 1827:3. Type-locality, "French Creek, near Meadville, Crawford Co., Pa.," restricted to the collection locality of the neotype, "a small spring-fed stream (flowing directly into French Creek) at Liberty and Linden streets, Meadville, Crawford Co., Pa." (Brandon, 1966).

Gyrinophilus porphyriticus: Cope, 1869:108-109.

PENNSYLVANIA SUBSPECIES:

Gyrinophilus porphyriticus porphyriticus: Stejneger and Barbour, 1933:15.

DISTRIBUTION: Statewide, except for the southeastern counties; possibly also absent from the Lake Erie Plain (see remarks).

STATUS: Not listed.

REMARKS: *Gyrinophilus* has not been recorded from Bucks, Delaware, Lancaster, and Montgomery counties in the southeastern corner of the state. An old record from Philadelphia Co. (Fowler and Dunn, 1917) is unsupported by recent collections. Brandon (1966:36) cites a record from "near Marshallton, Chester Co." which also requires verification. The southeasternmost unquestioned localities are in the hills of southern Berks Co. (Mohr, 1939; Baldauf, 1943).

The record from Presque Isle, Erie Co., is based on a specimen collected in 1906 (CM 344). *Gyrinophilus* was not found on Presque Isle by McKinstry (1975), and it is doubtful that suitable habitat for the species exists on the Peninsula. In Erie Co. *Gyrinophilus* populations occur in Eightmile Creek and Sixteenmile Creek (McKinstry and Cunningham, 1980), and should be sought along some of the swift-flowing streams (Walnut Creek, Elk Creek) that enter Lake Erie west of Presque Isle Bay.

Stanaka (1933) reported *Gyrinophilus* from Lackawanna Co., without citing a specific locality.

Brandon (1966) considered *Gyrinophilus* populations from extreme southwestern Pennsylvania to show evidence of intergradation with the subspecies *G. porphyriticus duryi*.

REFERENCES: 125; 131; 168; 172; 173; 187; 193; 194; 205; 239; 259; 270; 274; 279; 299; 301; 321; 336; 410; 448; 449; 453; 467; 470; 479; 480; 500; 514; 520; 549; 575; 583; 586; 627; 635a; 653; 659; 662; 663; 667; 689; 697; 699; 700; 703; 709; 710; 715; 730; 739; 782; 793; 819; 845; 850; 856; 857; 858; 859; 860; 861; 862; 863; 865; 872; 883; 939; 943; 944.

18. EASTERN MUD SALAMANDER

PSEUDOTRITON M. MONTANUS BAIRD

SYNONYMY:

Pseudotriton montanus Baird, 1850b:293. Type-locality, "South Mountain, near Carlisle [Cumberland Co.], Pennsylvania."

DISTRIBUTION: The only Pennsylvania locality is the type-locality (see remarks).

STATUS: Recently extirpated?

REMARKS: *Pseudotriton montanus* remains an enigmatic and at best questionable member of the Pennsylvania herpetofauna. Despite years of searching by numerous herpetologists the species has not been found again at the type-locality. In the north-eastern part of its range *P. montanus* is a coastal plain, rather than a montane species. It is doubtful that *P. montanus* occurs now in Cumberland Co., if indeed it ever did. Conant (1957b) suggested that *P. montanus* may be found in the lower Delaware Valley, as it occurs nearby in the bordering states of Delaware and New Jersey. But urbanization in the southeastern corner of the state may have already eliminated all habitat suitable for *Pseudotriton montanus*.

REFERENCES: 125; 178; 186; 247; 248; 272; 274; 321; 376; 411; 509; 514; 541; 625; 657; 697; 700; 709; 710; 715; 793; 856; 857; 858; 859; 860; 872; 943.

19. NORTHERN RED SALAMANDER

PSEUDOTRITON R. RUBER (LATREILLE)

SYNONYMY:

Salamandra rubra Latreille, in Sonnini and Latreille, 1801:305. Type-locality, "Les Etats Unis," restricted to "[probably] near Philadelphia" by Dunn (1926:274).

Pseudotriton ruber: Baird, 1850a:286.

PENNSYLVANIA SUBSPECIES:

Pseudotriton ruber ruber: Brimley, 1912:139–140.

DISTRIBUTION: Probably statewide, although the northern limit of the species' range approximates the northern border of Pennsylvania, and locality records are sparse in the northernmost tier of Pennsylvania counties.

STATUS: Not listed.

REMARKS: Reported from Lackawanna Co., but without specific locality, by Stanaka (1933). One locality, Beaver Lake, Sullivan Co. (CM 37923), could not be found on available maps.

REFERENCES: 125; 131; 158; 160; 173; 187; 205; 207; 259; 270; 274; 299; 312; 316; 318; 321; 324; 364; 376; 385; 406; 408; 410; 468; 470; 488; 509; 514; 520; 522; 548; 549; 558; 583; 586; 626; 627; 635a; 659; 663; 667; 668; 697; 699; 700; 703; 709; 710;

715; 730; 782; 819; 845; 846; 850; 861; 862; 865; 872; 883; 943; 944.

20. GREEN SALAMANDER

ANEIDES AENEUS (COPE AND PACKARD)

SYNONYMY:

Plethodon aeneus Cope and Packard, 1881:878.

Type-locality, "Nickajack Cave, Marion Co., Tennessee."

Aneides aeneus: Dunn, 1923:39.

DISTRIBUTION: One locality in extreme southern Fayette Co., Pennsylvania.

STATUS: Vulnerable (see remarks).

REMARKS: *Aneides aeneus* remains known, in Pennsylvania, only from the locality where it was first discovered in the state—Wymp's Gap, Fayette Co. (Richmond, 1952). Other exposures of the Pottsville sandstone, and other massive sandstone outcrops in southern Pennsylvania, should be investigated for populations of *Aneides*.

REFERENCES: 281; 320; 376; 439; 514; 763.

21. NORTHERN TWO-LINED SALAMANDER

EURYCEA B. BISLINEATA (GREEN)

SYNONYMY:

Salamandra bislineata Green, 1818:352. Type-locality, "New Jersey," restricted to "probably Princeton?" by Fowler (1906d:65). See remarks.

Eurycea bislineata: Stejneger and Barbour, 1917:18.

PENNSYLVANIA SUBSPECIES:

Eurycea bislineata bislineata: Dunn, 1920:34.

Salamandra flavissima Harlan, 1826b:286. Type-locality, "Pennsylvania," restricted to the vicinity of Philadelphia by Schmidt (1953:52).

Salamandra haldemani Holbrook, 1840:125. Type-locality, "the borders of Susquehanna River," restricted to Harrisburg, Dauphin Co., Pennsylvania, by Schmidt (1953:52).

Salamandra dorsata Valenciennes, in Duméril, Bibron and Duméril, 1854:93. Type-locality, designated as Harrisburg, Dauphin Co., Pennsylvania, by Schmidt (1953:52).

DISTRIBUTION: Statewide.

STATUS: Not listed.

REMARKS: Restriction of the type-locality of *Eurycea bislineata* to "western Pennsylvania" by Stejneger and Barbour (1917:19) was in error.

REFERENCES: 4; 125; 131; 142; 163; 168; 173; 205; 207; 239; 259; 274; 299; 301; 309; 312; 321; 324; 376; 402; 406; 408; 410; 450; 468; 470; 478; 479; 480; 482; 509; 514; 520; 548; 549; 558; 559; 575; 586; 627; 635a; 655; 656; 659; 663; 667; 689; 697; 699; 700; 703; 709; 710; 715; 730; 776; 793; 805; 806; 819; 845; 850; 856; 857; 858; 861; 862; 863; 865; 872; 883; 939; 943; 944.

22. LONG-TAILED SALAMANDER

EURYCEA L. LONGICAUDA (GREEN)

SYNONYMY:

Salamandra longicauda Green, 1818:351. Type-locality, "New Jersey," restricted to Princeton by Schmidt (1953:53).

Eurycea longicauda: Stejneger and Barbour, 1917:19.

PENNSYLVANIA SUBSPECIES:

Eurycea longicauda longicauda: Bailey, 1937:8.

DISTRIBUTION: Statewide, except for the Lake Erie Plain, Erie Co.

STATUS: Not listed.

REMARKS: *Eurycea longicauda* has also been reported from Lackawanna Co. without specific locality (Stanaka, 1933).

REFERENCES: 124; 125; 131; 158; 163; 168; 172; 173; 205; 239; 259; 266; 274; 299; 301; 321; 334; 335; 376; 406; 410; 414; 450; 466; 470; 509; 514; 520; 547; 549; 561; 563; 583; 627; 659; 662; 663; 665; 666; 667; 668; 697; 699; 700; 703; 709; 710; 715; 730; 778; 793; 819; 845; 850; 856; 861; 862; 863; 865; 872; 873; 883; 901; 943; 944.

23. EASTERN SPADEFOOT

SCAPHIOPUS H. HOLBROOKI (HARLAN)

SYNONYMY:

Rana holbrookii Harlan, 1835a:105. Type-locality, "South Carolina" restricted to Charleston, Charleston Co., by Schmidt (1953:58).

Scaphiopus holbrookii: Baird, 1859:12.

PENNSYLVANIA SUBSPECIES:

Scaphiopus holbrookii holbrookii: Stejneger and Barbour, 1917:26.

DISTRIBUTION: The Great Valley in southern Pennsylvania (Franklin and Cumberland counties); northward along the Susquehanna River to Montandon, Northumberland Co.; the lower Delaware Valley in the vicinity of Philadelphia, and northward along the Delaware River to Shawnee, Monroe Co.

STATUS: Not listed.

REMARKS: Colonies of *Scaphiopus* in Pennsylvania are scattered and extremely localized. Populations in the Philadelphia area (Montgomery and Delaware counties) reported by Cope (1867a), have undoubtedly been extirpated.

REFERENCES: 128; 131; 237; 268; 274; 382; 406; 416; 472; 480; 514; 697; 700; 709; 710; 715; 730; 793; 856; 862; 872; 890; 916; 940.

24. EASTERN AMERICAN TOAD

BUFO A. AMERICANUS HOLBROOK

SYNONYMY:

Bufo americanus Holbrook, 1836:75. Type-locality, "Maine through all the Atlantic states," restricted to the vicinity of Philadelphia by Schmidt (1953:65). See remarks.

PENNSYLVANIA SUBSPECIES:

Bufo americanus americanus: Gaige, 1932:134.

DISTRIBUTION: Statewide.

STATUS: Not listed.

REMARKS: Adler (1976) noted that "Dunn regarded ANSP 2474 from Massachusetts as a type of *americanus*," raising the possibility that Schmidt's type-locality restriction may be inappropriate.

REFERENCES: 4; 131; 176; 177; 178; 205; 237; 239; 274; 277; 312; 315; 322; 330; 364; 381; 382; 406; 408; 418; 426; 441; 469; 498; 514; 520; 552; 558; 575; 583; 627; 635a; 663; 664; 668; 689; 694; 697; 699; 700; 703; 709; 710; 715; 730; 778; 793; 819; 850; 862; 865; 872; 883; 901; 915; 940; 943; 944.

25. FOWLER'S TOAD

BUFO WOODHOUSEI FOWLERI HINCKLEY

SYNONYMY:

Bufo fowleri Hinckley, 1882:308. Type-locality, "Milton, Norfolk Co., Massachusetts."

PENNSYLVANIA SUBSPECIES:

Bufo woodhousei fowleri: Smith, 1934:456.

DISTRIBUTION: Southern two-thirds of the state, north to Venango Co. in the west and Wyoming Co. in the east, and the Lake Erie Plain; absent from the mountains.

STATUS: Not listed.

REMARKS: Reported, without specific localities,

from Lackawanna Co. (Stanaka, 1933) and Pike Co. (Miller and Chapin, 1910). Also recorded from "Greenville, Lebanon Co." (CM 8034) which could not be located.

Most records of *Bufo woodhousei fowleri* in Pennsylvania are from low-lying areas, frequently along rivers or near lakes, and almost always in sandy soils.

REFERENCES: 131; 205; 237; 279; 315; 382; 383; 498; 514; 540; 558; 649; 663; 694; 697; 699; 700; 709; 710; 715; 719; 730; 819; 828; 850; 862; 872; 940; 944.

26. NORTHERN CRICKET FROG
ACRIS C. CREPITANS BAIRD

SYNONYMY:

Acris crepitans Baird, 1854:59. Type-locality, "Northern states," suggested as New York by Dunn (1938:153).

PENNSYLVANIA SUBSPECIES:

Acris crepitans crepitans: Harper, 1947:39 (by inference).

DISTRIBUTION: Southeastern Pennsylvania, north to Carbon Co., and west to the Great Valley (Franklin Co.). See remarks.

STATUS: Not listed.

REMARKS: Both the origin and the present status of the Allegheny Co. population of *Acris* are questionable. Although five localities are supported by voucher collections (all in CM), indicating a general distribution in the county, none has been collected since 1903. Allegheny Co. is in the approximate center of a hiatus in the range of *Acris crepitans* that extends from Franklin Co. in the south-central part of Pennsylvania to central Ohio. This distribution suggests that the Allegheny Co. *Acris* were introduced possibly sometime during the 1800's, via either the Allegheny Portage Railway or barge traffic up the Ohio River.

A report of *Acris* from Potter Co. (Keim, 1915) is undoubtedly an error.

Acris crepitans has also been reported from Lancaster Co. (Stauffer in Mombert, 1869), without specific locality data.

REFERENCES: 127; 131; 186; 205; 237; 274; 323; 324; 373; 384; 389; 401; 406; 408; 461; 489; 514; 520; 557; 558; 575; 627; 663; 664; 668; 697; 699; 700; 709; 710; 715; 727; 728; 778; 862; 865; 872; 940; 943.

27. NORTHERN SPRING PEEPER
HYLA C. CRUCIFER WIED

SYNONYMY:

Hyla crucifer Wied, 1839:275. Type-locality, "Leavenworth, Leavenworth Co., Kansas."

PENNSYLVANIA SUBSPECIES:

Hyla crucifera crucifera: Harper, 1939:1.

DISTRIBUTION: Statewide.

STATUS: Not listed.

REMARKS: *Hyla crucifer* has also been reported from Lackawanna Co. (Stanaka, 1933) without specific locality data.

REFERENCES: 103; 121; 131; 163; 205; 237; 239; 274; 301; 304; 312; 324; 369; 373; 384; 389; 401; 406; 408; 417; 426; 487; 493; 514; 520; 549; 556; 558; 575; 583; 627; 663; 664; 689; 697; 699; 700; 703; 709; 710; 715; 727; 730; 782; 814; 819; 844; 850; 862; 865; 872; 883; 928; 940; 943; 944.

28. GRAY TREEFROG
HYLA VERSICOLOR LeCONTE

SYNONYMY:

Hyla versicolor LeConte, 1825:281. Type-locality, "northern states," restricted to the vicinity of New York City by Schmidt (1953:73).

DISTRIBUTION: Possibly statewide, but records are almost entirely lacking from the Allegheny Mountains and the northern third of the state from the Allegheny Plateau eastward.

STATUS: Not listed.

REMARKS: *Hyla versicolor* has been reported from Lackawanna Co. (Stanaka, 1933) and Lancaster Co. (Haldeman in Rupp, 1844; Stauffer in Mombert, 1869), without specific locality data.

In the absence of quantitative data on either the pulse-rate of the call or the karyotype of Pennsylvania gray treefrogs, one or the other of which is essential to distinguish *H. versicolor* from the morphologically identical sibling species *H. chrysoscelis* Cope, I have arbitrarily assigned all populations to *H. versicolor*. This assignment is consistent with the range map presented by Ralin (1968). However, Zweifel (1970) found populations of *H. chrysoscelis* as far north in the Atlantic Coastal Plain as Sussex Co., Delaware, and Cape May Co., New Jersey. Gray treefrog populations in the vicinity of Philadelphia should be investigated to determine

whether *H. chrysoscelis* penetrates the Delaware River Valley to that latitude.

REFERENCES: 131; 186; 237; 274; 324; 373; 384; 389; 401; 406; 408; 418; 461; 514; 520; 583; 601; 627; 663; 668; 697; 699; 700; 703; 709; 710; 715; 727; 728; 730; 778; 793; 850; 862; 865; 872; 877; 883; 901.

29. MOUNTAIN CHORUS FROG

PSEUDACRIS BRACHYPHONA (COPE)

SYNONYMY:

C[horophilus] feriarum brachyphonus Cope, 1889b:341. Type-locality, "west Pennsylvania, near the Kiskiminitas River."

Pseudacris brachyphona: Walker, 1932:379.

DISTRIBUTION: Southwestern Pennsylvania, on western slopes of the Allegheny Mountains but avoiding the Somerset Plateau, northeastward to Blair, Clearfield, and Jefferson counties, and from Allegheny and Beaver counties southward along the western border.

STATUS: Not listed.

REMARKS: *Pseudacris brachyphona* replaces *P. triseriata* in the Allegheny Mountains of southwestern Pennsylvania (Smith and D. M. Smith, 1952), but the species are sympatric in Allegheny and Beaver counties. Where they occur in proximity, *P. triseriata* is a species of broad river valleys and open meadows, and *P. brachyphona* inhabits creeks and spring runs on the wooded hillsides (Walker, 1932).

REFERENCES: 274; 373; 384; 389; 493; 514; 544; 697; 699; 700; 703; 709; 710; 715; 763; 793; 819; 838; 858; 859; 860; 914; 940; 944.

30. STRIPED CHORUS FROG

PSEUDACRIS TRISERIATA (WIED)

SYNONYMY:

Hyla triseriata Wied, 1839:249. Type-locality, "Rush Creek, about 4 miles South of New Harmony, Posey Co., Indiana" (Harper, 1955a).

Pseudacris triseriata: Stejneger and Barbour, 1917:31.

PENNSYLVANIA SUBSPECIES:

(1) Western Chorus Frog *Pseudacris t. triseriata* (Wied)

Pseudacris triseriata triseriata: Schwartz, 1957:11.

(2) Upland Chorus Frog *Pseudacris triseriata feriarum* (Baird)

Helocaetes feriarum Baird, 1854:60. Type-locality, "Carlisle, [Cumberland Co.] Penna."

Pseudacris triseriata feriarum: Schwartz, 1957:11.

(3) New Jersey Chorus Frog *Pseudacris triseriata kalmi* Harper

Pseudacris nigrita kalmi Harper, 1955b:150. Type-locality, "Centreton, 5 miles Northeast of Moorestown, Burlington Co., New Jersey."

Pseudacris triseriata kalmi: Schwartz, 1957:11.

DISTRIBUTION: Western Pennsylvania, west of the Allegheny Mountains, from Warren Co. southward (*triseriata*); south-central Pennsylvania, from the Allegheny Front eastward to the edge of the Coastal Plain, north to Lycoming Co. (*feriarum*); south-eastern Pennsylvania in the Atlantic Coastal Plain (*kalmi*).

STATUS: *Pseudacris triseriata kalmi* is endangered; *P. t. triseriata* and *P. triseriata feriarum* are not listed. See remarks.

REMARKS: *Pseudacris triseriata kalmi*, which is restricted to the Coastal Plain section of the lower Delaware Valley, is endangered by loss of habitat due to urbanization and industrialization of this area, as are all species with similar distributions in Pennsylvania. Published reports are also available from the vicinity of Philadelphia (Conant, 1940), and Delaware Co. (Palmer, 1908), without specific locality data. Populations of *Pseudacris triseriata* from the edge of the piedmont in Montgomery, Berks, and Chester counties are probably intergradient between *P. t. kalmi* and *P. t. feriarum*. *Pseudacris triseriata feriarum* and *P. t. triseriata* do not intergrade in Pennsylvania, as their ranges are separated by that of *Pseudacris brachyphona*.

REFERENCES: 127; 131; 162; 163; 237; 247; 267; 274; 324; 373; 384; 389; 405; 408; 491; 493; 514; 558; 663; 697; 698; 699; 700; 709; 710; 715; 727; 730; 793; 802; 838; 856; 857; 858; 859; 860; 862; 865; 872; 883; 914; 940.

31. BULLFROG

RANA CATESBEIANA SHAW

SYNONYMY:

Rana catesbeiana Shaw, 1802:106. Type-locality, "South Carolina," restricted to the vicinity of Charleston by Schmidt (1953:79).

Rana scapularis Harlan, 1826a:59. Type-locality, "Pennsylvania," restricted to the vicinity of Philadelphia by Schmidt (1953:79).

DISTRIBUTION: Statewide (see remarks).

STATUS: Not listed.

REMARKS: For many years *Rana catesbeiana* was propagated by the Pennsylvania Fish Commission and introduced widely over the state (Buller, 1927; Netting, 1939c), thus available locality records do not reflect the natural distribution.

Harlan (1826a) referred to *R. catesbeiana* as "*Rana pipiens*," and described the young of *R. catesbeiana* as a new species, *Rana scapularis*.

REFERENCES: 53; 61; 63; 69; 82; 83; 109; 131; 192; 202; 203; 204; 205; 210; 219; 237; 239; 274; 296; 299; 312; 324; 373; 374; 381; 384; 391; 401; 406; 408; 417; 419; 477; 479; 480; 484; 504; 514; 520; 552; 575; 583; 627; 659; 663; 667; 668; 697; 699; 700; 703; 709; 710; 715; 717; 727; 728; 730; 775; 778; 793; 813; 819; 850; 853; 862; 865; 872; 883; 901; 936; 940; 943; 944.

32. GREEN FROG

RANA CLAMITANS MELANOTA (RAFINESQUE)

SYNONYMY:

Ranaria melonota Rafinesque, 1820b:5. Type-locality, "Lake Champlain."

PENNSYLVANIA SUBSPECIES:

Rana clamitans melanota: Rhoads, 1895:394.

Rana flaviviridis Harlan, 1826a:58. Type-locality, "vicinity of Philadelphia."

DISTRIBUTION: Statewide.

STATUS: Not listed.

REFERENCES: 106; 112; 131; 186; 190; 196; 203; 205; 237; 239; 274; 299; 312; 322; 324; 364; 373; 381; 384; 401; 406; 408; 417; 418; 461; 477; 484; 504; 514; 520; 522; 547; 549; 552; 554; 558; 575; 583; 627; 635a; 637; 659; 663; 664; 667; 668; 697; 699; 700; 703; 709; 710; 715; 717; 727; 728; 730; 750; 762; 765; 782; 793; 819; 846; 850; 862; 865; 872; 883; 915; 940; 943; 944.

33. PICKEREL FROG

RANA PALUSTRIS LeCONTE

SYNONYMY:

Rana palustris LeConte, 1825:282. Type-locality, not stated, restricted to the vicinity of Philadelphia by Schmidt (1953:83).

DISTRIBUTION: Statewide.

STATUS: Not listed.

REFERENCES: 131; 186; 190; 203; 206; 237; 239; 274; 279; 312; 322; 324; 364; 373; 374; 383; 384; 401; 406; 408; 417; 473; 477; 479; 480; 484; 493; 514; 520; 552; 558; 575; 583; 584; 601; 604; 627; 635a; 663; 668; 689; 697; 699; 700; 703; 709; 710; 715; 726; 727; 728; 775; 778; 782; 787; 788; 793; 819; 850; 862; 865; 872; 883; 901; 915; 943; 944.

34. NORTHERN LEOPARD FROG

RANA PIPIENS SCHREBER

SYNONYMY:

Rana pipiens Schreber, 1782:185. Type-locality, "New York," restricted to Fall Creek, Etna, Tomkins Co., New York (Pace, 1974:16).

DISTRIBUTION: Widespread in western Pennsylvania, from the Lake Erie Plain and the western edge of the Allegheny Plateau south to the West Virginia line; scattered localities in central and eastern Pennsylvania south to Cumberland and Chester counties; absent from most of the Allegheny Mountains, the Pocono Mountains, and the Coastal Plain (see remarks).

STATUS: Not listed.

REMARKS: Pace (1974:101) observed that *R. pipiens* occurs only sporadically south of the glacial limit, and suggested that the specimens from Carlisle, Cumberland Co., may represent a disjunct population. Pace (1974) also related the scattered and sporadic occurrence of *R. pipiens* in this area "in some way" to the presence of the widespread and common *R. palustris*. The distributional and ecological relationships of *R. pipiens* and *R. palustris* in the Appalachian Region have long been a subject for conjecture (Netting, 1933b; Dunn, 1935), but quantitative studies of factors that could account for competitive exclusion remain to be done. Whatever the distributional relationships of *R. pipiens* and *R. palustris*, available records indicate that the range of *R. pipiens* in Pennsylvania is much more extensive and more nearly continuous than shown by Conant (1975) or Pace (1974:17, Fig. 1).

In addition to localities shown on the map, *R. pipiens* has been reported from Lackawanna Co. (Stanaka, 1933), and Lancaster Co. (Haldeman *in* Rupp, 1844; Stauffer *in* Mombert, 1869), without specific locality data.

REFERENCES: 121; 131; 202; 203; 205; 237; 239; 253; 274; 277; 299; 322; 324; 373; 384; 401; 417; 418; 493; 514; 520; 545; 554; 573; 574; 627; 635a; 659; 662; 663; 667; 668; 697; 698; 699; 700;

703; 709; 710; 715; 726; 730; 775; 778; 799; 850; 856; 857; 859; 860; 862; 865; 872; 883; 901; 915; 940; 943; 944.

35. SOUTHERN LEOPARD FROG

RANA U. UTRICULARIA HARLAN

SYNONYMY:

Rana utricularius Harlan, 1826a:60. Type-locality, "Pennsylvania and New Jersey," restricted to the vicinity of Philadelphia by Schmidt (1953:82); Pace (1974:18) designated a neotype from Philadelphia.

PENNSYLVANIA SUBSPECIES:

Rana utricularia utricularia: Pace, 1974:20.

DISTRIBUTION: The lower Delaware Valley of southeastern Pennsylvania, in Bucks, Chester, Delaware, and Philadelphia counties.

STATUS: Endangered (see remarks).

REMARKS: *Rana utricularia* is restricted, in Pennsylvania, to the Atlantic Coastal Plain along the lower Delaware River (Dunn, 1935), where it is endangered by continuing habitat destruction (Hudson, 1956). In Pennsylvania literature this species has been referred to as *Rana pipiens*, *Rana pipiens sphenoccephala*, *Rana virescens*, or *Rana halecina*.

REFERENCES: 237; 322; 406; 408; 461; 469; 477; 479; 480; 484; 545; 549; 558; 560; 726; 727; 728; 793.

36. WOOD FROG

RANA SYLVATICA LeCONTE

SYNONYMY:

Rana sylvatica LeConte, 1825:282. Type-locality, not stated, designated as the vicinity of New York City by Schmidt (1953:81).

DISTRIBUTION: Statewide.

STATUS: Not listed.

REFERENCES: 131; 163; 185; 190; 205; 237; 239; 274; 279; 299; 312; 324; 373; 384; 406; 408; 417; 418; 426; 477; 484; 493; 514; 520; 558; 575; 583; 601; 624; 627; 635a; 663; 667; 668; 689; 697; 699; 700; 703; 709; 710; 715; 727; 730; 778; 782; 793; 800a; 819; 850; 862; 865; 872; 883; 901; 939; 940; 943; 944.

37. COMMON SNAPPING TURTLE

CHELYDRA S. SERPENTINA (LINNAEUS)

SYNONYMY:

Testudo serpentina Linnaeus, 1758:199. Type-locality, "warmer regions [of North America], re-

stricted to the vicinity of New York City by Schmidt (1953:86).

Chelydra serpentina: Schweigger, 1812:292.

PENNSYLVANIA SUBSPECIES:

Chelydra serpentina serpentina: Stejneger, 1914:4. *Testudo longicauda* Shaw, in Gray, 1831:36. Type-locality, not given, designated as the vicinity of Philadelphia by Schmidt (1953:86).

DISTRIBUTION: Statewide (see remarks).

STATUS: Not listed.

REMARKS: A specimen (CM) is available from "Lycoming County."

REFERENCES: 30; 34; 43; 51; 71; 73; 76; 77; 81; 87; 90; 91; 94; 100; 101; 102; 104; 105; 108; 114; 119; 122; 131; 188; 202; 211; 212; 215; 217; 221; 236; 271; 282; 312; 324; 337; 340; 342; 355; 359; 372; 385; 387; 390; 395; 396; 404; 406; 408; 463; 499; 514; 520; 549; 552; 571; 583; 599; 616; 627; 645; 648; 668; 699; 700; 703; 709; 711; 715; 717; 730; 733; 745; 769; 778; 819; 863; 865; 870; 880; 884; 887; 888; 901; 902; 924; 927; 943.

38. STINKPOT

STERNOTHERUS ODORATUS (LATREILLE)

SYNONYMY:

Testudo odorata Latreille, in Sonnini and Latreille, 1801 (1):122. Type-locality, "Carolina," restricted to the vicinity of Charleston by Schmidt (1953:87).

Testudo glutinata Daudin, 1801:194. Type-locality, "North America," restricted to the vicinity of Philadelphia by Schmidt (1953:87).

Sternotherus odoratus: Bell, 1825:307.

Kinosternum guttatum LeConte, 1854:185. Type-locality, "Pennsylvania," restricted to the vicinity of Philadelphia by Schmidt (1953:87).

DISTRIBUTION: Lake Erie; northwest Pennsylvania in Crawford and Mercer counties; southeastern Pennsylvania from Huntingdon and Union counties eastward. See remarks.

STATUS: Not listed.

REMARKS: Although most standard references (Conant, 1975; Ernst and Barbour, 1972) indicate a statewide distribution for *Sternotherus odoratus* in Pennsylvania, the actual situation is much more complicated. In the Ohio River Drainage *S. odoratus* has been found only in the swampy areas of Crawford and Mercer counties, in the Shenango River Drainage. A record from Meadville, Craw-

ford Co., in the French Creek (Allegheny River) Drainage requires confirmation. *Sternotherus* is otherwise completely absent from the Ohio and its tributaries in Pennsylvania, although it occurs in bordering West Virginia and Indian midden remains from Allegheny County (Lang, 1968) suggest that it once may have occurred throughout the Ohio Drainage.

Sternotherus odoratus is completely absent from the remainder of western Pennsylvania, from the Allegheny Plateau, from the Allegheny Mountains, and from the northern third of the state east of the Alleghenies. Populations thrive in the limestone streams of the Ridge and Valley Section (Susquehanna Drainage) and occur generally throughout the southeastern quarter of the state.

Reports from Gold, Potter Co. (Keim, 1915) and Allegheny Co. (Atkinson, 1901) are unsupported by voucher specimens and need verification.

REFERENCES: 6; 119; 131; 188; 202; 215; 236; 245; 282; 312; 324; 337; 340; 342; 359; 371; 380; 381; 383; 406; 408; 459; 496; 502; 514; 520; 547; 549; 575; 627; 668; 699; 700; 709; 711; 715; 745; 769; 778; 793; 863; 865; 870; 897; 943.

39. EASTERN MUD TURTLE

KINOSTERNON S. SUBRUBRUM (LACÉPÈDE)

SYNONYMY:

Testudo subrubra Lacépède, 1788:618. Type-locality, unknown, restricted to the vicinity of Philadelphia [Pennsylvania] by Schmidt (1953:90).

Kinosternon subrubrum: Stejneger and Barbour, 1917:112.

PENNSYLVANIA SUBSPECIES:

Kinosternon subrubrum subrubrum: Stejneger and Barbour, 1917:112.

Testudo pensilvanica Gmelin, 1788:1042. Type-locality, "Pennsylvania," restricted to the vicinity of Philadelphia by Schmidt (1953:90).

Terrapene Boscii Merrem, 1820:27. Type-locality, "America septentrionali," restricted to the vicinity of Philadelphia [Pennsylvania] by Schmidt (1953:90).

Kinosternon oblongum Gray, 1844:33. Type-locality, "America," restricted to the vicinity of Philadelphia [Pennsylvania] by Schmidt (1953:90).

Kinosternon Doubledayi Gray, 1844:33. Type-locality, "California," designated as the vicinity of Philadelphia [Pennsylvania] by Schmidt (1953:90).

Swanka fasciata Gray, 1869:183. Type-locality, un-

known, restricted to the vicinity of Philadelphia [Pennsylvania] by Schmidt (1953:90).

DISTRIBUTION: Lower Delaware Valley in southeastern Bucks County, Philadelphia County, and Delaware County.

STATUS: Endangered (see remarks).

REMARKS: *Kinosternon subrubrum* is restricted, in Pennsylvania, to the Atlantic Coastal Plain along the lower Delaware River. It is endangered by continuing habitat destruction in this heavily urbanized and industrialized area. Populations may persist in some local protected areas, such as the Tinicum National Wildlife Refuge, Delaware Co.

Published reports of Pennsylvania *K. subrubrum* from Piedmont localities in Berks (Baldauf, 1943), Lehigh (Mattern and Mattern, 1917), and Lancaster (Haldeman in Rupp, 1844; Stauffer in Mombert, 1869; Iverson, 1977) counties are probably erroneous.

Reports from Allegheny Co. (Atkinson, 1901; Netting, 1935), and Westmoreland Co. (Netting, 1935), are undoubtedly in error. Although two specimens are available from Warrendale, Allegheny Co. (Conant, 1951a), they are probably mislabeled. The literature report from Fulton Co. (Netting, 1935) is probably based on a misidentified *Sternotherus odoratus*.

REFERENCES: 6; 119; 131; 215; 236; 245; 254; 310; 359; 371; 381; 408; 437; 445; 446; 496; 514; 547; 549; 564; 591; 627; 633; 643; 668; 699; 700; 709; 711; 715; 745; 769; 775; 778; 793; 856; 857; 858; 859; 860; 870.

40. SPOTTED TURTLE

CLEMMYS GUTTATA (SCHNEIDER)

SYNONYMY:

Testudo guttata Schneider, 1792:264. Type-locality, unknown, designated as Philadelphia, Pennsylvania by Mittleman (1945:171).

Testudo punctata Schoepff, 1792:25. Type-locality, "Philadelphiam," [Pennsylvania].

Clemmys guttata: Strauch, 1862:107.

Geoclenmys sebae Gray, 1869:188. Type-locality, not stated, designated as the vicinity of Philadelphia by Schmidt (1953:91).

DISTRIBUTION: Western Pennsylvania, from Lake Erie southward west of the Allegheny Plateau, excluding the southwesternmost counties (Greene and Fayette); eastern Pennsylvania from the Allegheny

Mountains to the Delaware River; absent from the Allegheny Plateau and the Allegheny Mountains.

STATUS: Not listed.

REFERENCES: 6; 119; 131; 202; 215; 236; 282; 312; 339; 340; 341; 342; 343; 352; 355; 356; 357; 359; 364; 371; 381; 383; 406; 408; 409; 446; 479; 480; 496; 514; 520; 584; 627; 654; 668; 699; 700; 702; 709; 711; 715; 717; 730; 745; 769; 778; 793; 795; 797; 819; 863; 865; 867; 870; 884; 901; 943.

41. WOOD TURTLE

CLEMMYS INSCULPTA (LeCONTE)

SYNONYMY:

Testudo insculpta LeConte, 1830:112. Type-locality, "the northern states," restricted to the vicinity of New York City by Schmidt (1953:92).

Clemmys insculpta: Fitzinger, 1835:124.

DISTRIBUTION: Statewide, though possibly absent from the westernmost counties.

STATUS: Not listed.

REMARKS: *Clemmys insculpta* has also been reported from Lebanon County (Heilman, 1951), without specific locality data.

REFERENCES: 2; 9; 111; 119; 130; 131; 188; 202; 215; 236; 245; 282; 288; 301; 312; 340; 342; 353; 359; 364; 381; 393; 406; 408; 448; 496; 502; 514; 520; 547; 549; 558; 583; 602; 627; 629; 668; 672; 699; 700; 703; 709; 711; 715; 717; 730; 745; 754; 769; 778; 793; 819; 863; 865; 870; 881; 884; 943.

42. BOG TURTLE

CLEMMYS MUHLENBERGI (SCHOEPFF)

SYNONYMY:

Testudo muhlenbergii Schoepff, 1801:132. Type-locality, "Pennsylvaniae," restricted to Lancaster [Lancaster Co.], Pennsylvania, by Stejneger and Barbour (1917:114).

Emys biguttata Say, 1825a:212. Type-locality, "United States," restricted to the vicinity of Philadelphia by Schmidt (1953:92).

Clemmys muhlenbergii: Fitzinger, 1835:124.

DISTRIBUTION: Southeastern Pennsylvania, from the Great Valley (Franklin and Cumberland counties) southeastward, north to the edge of the Pocono Mountains (Monroe Co.); an isolated population in northwestern Pennsylvania (Butler, Mercer, and Crawford counties).

STATUS: Endangered.

REMARKS: Continued survival of *Clemmys muhlenbergi* in Pennsylvania, as throughout its range, is endangered primarily because of habitat loss resulting from damming or draining of marshes, bogs, and other wetlands. Some populations have been eliminated by over-collecting for the pet trade. Populations are extremely localized, and once a location becomes known repeated searches can extirpate an entire population.

Knepp (1942) reported *C. muhlenbergi* from Adams Co., without specific locality data. The published report from Union Co. (Pawling, 1939) was probably based on an escaped pet.

REFERENCES: 6; 131; 148; 154; 155; 156; 188; 205; 208; 215; 236; 245; 247; 272; 282; 301; 312; 316; 324; 342; 357; 358; 359; 360; 380; 383; 388; 393; 406; 415; 424; 445; 448; 479; 480; 514; 520; 545; 549; 558; 585; 593; 627; 629; 632; 681; 682; 683; 684; 685; 699; 700; 709; 711; 715; 717; 730; 745; 769; 775; 778; 785; 793; 798; 856; 857; 858; 859; 860; 865; 870; 938; 943; 946.

43. BLANDING'S TURTLE

EMYDOIDEA BLANDINGI (HOLBROOK)

SYNONYMY:

Cistuda blandingii Holbrook, 1838b:35. Type-locality, "Fox River, a tributary of the Illinois."

Emydoidea blandingii: Gray, 1870:19.

DISTRIBUTION: The shore of Lake Erie, and the Pymatuning Swamp-Conneaut Lake area of southwestern Crawford Co. (see remarks).

STATUS: Recently extirpated?

REMARKS: The only available specimens of *Emydoidea blandingi* are from Conneaut Lake (CM 3188) and nearby Linesville (CM 3189), Crawford Co. None has been collected in this area since 1906. The damming of the Shenango River outlet of Pymatuning Swamp in 1935, which produced Pymatuning Lake, significantly altered the aquatic and semiaquatic habitats in this area. Nevertheless, much wetland remains which might be suitable for a remnant population of *Emydoidea*. Netting (1932b) hypothesized that *Emydoidea* reached the Conneaut Lake area from Lake Erie via the Beaver and Lake Erie Canal, which was in operation between 1844 and 1871.

Occasional specimens of *Emydoidea* are found along the Lake Erie shoreline area. These are probably waifs from the northern and western parts of the lake, and do not represent an established population in Pennsylvania.

Netting (1932*b*) rejected records from Northumberland and Union counties (Stewart, 1928; Pawling, 1939) as based on escaped captive turtles.

REFERENCES: 215; 359; 371; 447; 496; 514; 547; 631; 633; 696; 699; 700; 709; 711; 712; 715; 717; 730; 793; 859; 860; 863; 870.

44. EASTERN BOX TURTLE

TERRAPENE C. CAROLINA (LINNAEUS)

SYNONYMY:

Testudo carolina Linnaeus, 1758:198. Type-locality, "Carolina," restricted to the vicinity of Charleston, South Carolina, by Schmidt (1953:93).

Terrapene carolina: Bell, 1825:309.

PENNSYLVANIA SUBSPECIES:

Terrapene carolina carolina: H. Garman, 1892:219–220.

Testudo clausa Gmelin, 1788:1042. Type-locality, "North America," restricted to the vicinity of Philadelphia by Schmidt (1953:94).

Testudo incarcerationata Bonnaterre, 1789:29. Type-locality, "Philadelphia."

Testudo incarcerationata-striata Bonnaterre, 1789:29. Type-locality, "North America," restricted to the vicinity of Philadelphia by Schmidt (1953:93).

Emys schneideri Schweigger, 1812:317. Type-locality unknown, designated as the vicinity of Philadelphia by Schmidt (1953:94).

Terrapene maculata Bell, 1825:309. Type-locality unknown, designated as the vicinity of Philadelphia by Schmidt (1953:94).

Terrapene nebulosa Bell, 1825:310. Type-locality unknown, designated as the vicinity of Philadelphia by Schmidt (1953:94).

Emys kinosternoides Gray, 1831:32. Type-locality unknown, designated as the vicinity of Philadelphia by Schmidt (1953:94).

DISTRIBUTION: Western Pennsylvania from Lake Erie southward, west of the Allegheny Mountains; eastern Pennsylvania from the Allegheny Front eastward, north to Clinton, Lycoming, and Wyoming counties. Absent from the Allegheny Mountains, the Allegheny Plateau, and the northern third of Pennsylvania east of the mountains.

STATUS: Not listed.

REFERENCES: 3; 119; 130; 131; 215; 236; 256; 257; 272; 282; 286; 312; 324; 340; 359; 364; 381; 387; 401; 406; 408; 496; 502; 514; 520; 551; 558; 569; 583; 597; 627; 629; 640; 662; 668; 699; 700; 703; 709; 711; 715; 718; 730; 769; 770; 778; 785; 793; 819; 863; 865; 870; 884; 894; 901; 930; 943.

45. MAP TURTLE

GRAPTEMYS GEOGRAPHICA (LE SUEUR)

SYNONYMY:

Testudo geographica Le Sueur, 1817:86. Type-locality, "marsh on border of Lake Erie."

Graptemys geographica: Agassiz, 1857:436.

DISTRIBUTION: Lake Erie; scattered localities in the Ohio River Drainage; the Susquehanna River and its major tributaries west to Bedford Co. (Raystown Branch of Juniata River) and north to Bradford Co.; lower part of the Delaware River. See remarks.

STATUS: Not listed.

REMARKS: There are only two records of *Graptemys geographica* in the Ohio River Drainage in Pennsylvania—Verona, Allegheny Co. (Atkinson, 1901), and Cochran's Mill, Armstrong Co. (Surface, 1908*a*). The major eastern tributaries of the Allegheny River—Conemaugh River, Kiskiminetas River, Mahoning Creek, Redbank Creek, and Clarion River—have all been severely polluted by acid mine drainage. It is unlikely that populations of *Graptemys* persist in such streams that have suffered total destruction of aquatic fauna. *Graptemys geographica* is recorded from the Monongahela River in Monongalia Co., West Virginia (Green, 1969), and should be sought in Pennsylvania tributaries of the Monongahela.

The origin of the Delaware River population, which escaped detection until recently (Arndt and Potter, 1973), is a matter for conjecture. It is possible that *Graptemys* reached the Delaware River via a canal connection with the Hudson River, which in turn had canals that reached both Lake Erie and Lake Champlain, both of which support *Graptemys* populations. The possibility also exists that *Graptemys* was introduced and has become established, as has *Trionyx* in the nearby section of New Jersey (Conant, 1961).

REFERENCES: 6; 117; 119; 162; 188; 215; 247; 272; 282; 301; 359; 371; 479; 480; 511; 514; 549; 584; 607; 623; 629; 635; 668; 699; 700; 709; 711; 715; 736*a*; 745; 769; 778; 785; 791; 793; 856; 857; 858; 859; 860; 870; 901; 935.

46. MIDLAND PAINTED TURTLE

CHRYSEMYS PICTA MARGINATA AGASSIZ

SYNONYMY:

Chrysemys marginata Agassiz, 1857:439. Type-locality, "Racine, Wisconsin; Milwaukee, Wisconsin."

sin; Flint, Michigan; Ann Arbor, Michigan; Delphi, Indiana; Burlington, Iowa," restricted to northern Indiana by Schmidt (1953:99).

PENNSYLVANIA SUBSPECIES:

Chrysemys picta marginata: Bishop and Schmidt, 1931:136.

DISTRIBUTION: Statewide.

STATUS: Not listed.

REMARKS: For many years painted turtles from the Delaware River Drainage were assigned to the subspecies *C. picta picta*. Populations from the Susquehanna River Drainage were regarded as intergrades (*C. p. picta* × *C. picta marginata*), and those from the Ohio River Drainage and Lake Erie as *C. picta marginata* (Netting, 1939d). Ernst and Ernst (1971) studied variation in Pennsylvania painted turtles and concluded that although assignment of the Lake Erie and Ohio River Drainage populations to *C. picta marginata* is correct, all Pennsylvania painted turtle populations east of the Allegheny Mountains are intergradient between *C. p. picta* and *C. picta marginata*. Because of this, Ernst (1971g) suggested that Mittleman's (1945) restriction of the type-locality of *C. p. picta* to Lancaster, Pennsylvania, was inappropriate.

Chrysemys picta has also been recorded from Limekiln Run, Lehigh Co. (ANSP 18380), which could not be located on available maps.

REFERENCES: 6; 119; 131; 163; 175; 202; 215; 236; 247; 232; 310; 312; 324; 337; 342; 344; 345; 346; 347; 348; 349; 350; 351; 354; 355; 359; 361; 371; 385; 401; 406; 408; 479; 480; 502; 511; 514; 520; 546; 549; 552; 558; 583; 610; 627; 635; 654; 668; 699; 700; 703; 709; 711; 715; 717; 730; 745; 769; 775; 778; 793; 819; 859; 860; 863; 865; 870; 880; 884; 901.

47. REDBELLIED TURTLE

PSEUDEMYX RUBRIVENTRIS (LeConte)

SYNONYMY:

Testudo rubriventris LeConte, 1830:101. Type-locality, "Delaware River near Trenton, New Jersey."

Emys irrigata Duméril and Bibron, 1835:276. Type-locality, "United States," restricted to vicinity of Trenton, New Jersey, by Schmidt (1953:103).

Emys rivulata Gray, 1844:22. Type-locality, "North America," restricted to vicinity of Trenton, New Jersey, by Schmidt (1953:103).

Pseudemys rubriventris: Loennberg, 1894:318.

DISTRIBUTION: Lower parts of the Delaware and Susquehanna drainages, and the Potomac Drainage (see remarks).

STATUS: Endangered.

REMARKS: *Pseudemys rubriventris* has probably been extirpated from the Delaware River, but persists in several lakes and streams in Bucks and Delaware counties. It is endangered by continuing habitat destruction in this densely populated region. Although at one time it was abundant in the Susquehanna River (Holbrook, 1838a), by 1869 populations had declined to the point where it was considered "rather rare" (Stauffer in Mombert, 1869). This decline may have been a result of over-fishing, as *P. rubriventris* was among the species of turtles commonly taken for the market (Holbrook, 1838a; Cope, 1890).

The only record from the Potomac Drainage in Pennsylvania is a specimen taken (and released) by a Pennsylvania Fish Commission survey party at Fannettsburg Dam on the West Branch of Conococheague Creek, Franklin Co. in 1968 (C. Shiffer, personal communication). An effort should be made to determine the distribution and current population status of this species in the Susquehanna and Potomac drainages.

REFERENCES: 153; 214; 215; 246; 247; 308; 359; 371; 408; 445; 502; 511; 514; 546; 549; 602; 614; 629; 633; 668; 700; 709; 711; 715; 769; 778; 793; 856; 857; 858; 859; 860; 865; 870.

48. EASTERN SPINY SOFTSHELL

TRIONYX S. SPINIFERUS LE SUEUR

SYNONYMY:

Trionyx spiniferus Le Sueur, 1827:258. Type-locality, "Wabash River, New Harmony" [Posey Co., Indiana].

Trionyx annulifer Wied, 1839:140. Type-locality, not stated, restricted to the Ohio River at Pittsburgh [Allegheny Co.], Pennsylvania, by Stejneger (1944:49).

PENNSYLVANIA SUBSPECIES:

Trionyx spiniferus spiniferus: Stejneger and Barbour, 1939:172.

DISTRIBUTION: Lake Erie and the Ohio River Drainage (see remarks).

STATUS: Not listed.

REMARKS: Stone (1906) reported *Trionyx spiniferus* from the Delaware Valley, probably on the basis of escaped captives or introduced populations. Conant (1961) reviewed the history of introduced *Trionyx* in southern New Jersey, and mentioned escaped softshells in the city of Philadelphia. Roddy's (1928) record of *Trionyx* from the Susquehanna River, which was unwittingly repeated by Neill (1951), is surely erroneous.

REFERENCES: 6; 9; 119; 188; 215; 251; 301; 359; 371; 479; 480; 502; 511; 514; 607; 678; 699; 700; 703; 709; 711; 714; 715; 769; 785; 793; 855; 856; 857; 858; 859; 860; 865; 870; 884; 919; 921; 928.

49. MIDLAND SMOOTH SOFTSHELL
TRIONYX M. MUTICUS LE SUEUR

SYNONYMY:

Trionyx muticus Le Sueur, 1827:263. Type-locality, "Wabash River, New Harmony" [Posey Co., Indiana].

PENNSYLVANIA SUBSPECIES:

Trionyx muticus muticus: Webb, 1959:520.

DISTRIBUTION: Ohio and Allegheny rivers.

STATUS: Recently extirpated? See remarks.

REMARKS: *Trionyx muticus* is known from only two localities in Pennsylvania—Neville Island, Ohio River, Allegheny Co. (Atkinson, 1901), and Foxburg, Allegheny River, Clarion Co. (MCZ 1911). No records are available after 1901, and the character of the large rivers of the Ohio Drainage has been so altered by pollution that *T. muticus* may have been extirpated from these streams.

REFERENCES: 6; 119; 215; 245; 301; 359; 479; 480; 511; 514; 608; 633; 713; 714; 715; 793; 858; 859; 860; 870; 918; 919; 920.

50. NORTHERN FENCE LIZARD
SCELOPORUS UNDULATUS HYACINTHINUS
(GREEN)

SYNONYMY:

Lacerta hyacinthina Green, 1818:349. Type-locality, "vicinity of Princeton, New Jersey."

PENNSYLVANIA SUBSPECIES:

Sceloporus undulatus hyacinthinus: Smith, 1948:2.

DISTRIBUTION: Generally the southern half of Pennsylvania; in western Pennsylvania north to Beaver,

Allegheny, and Indiana counties and in central Pennsylvania north to Clinton Co., but absent from most of northeastern Pennsylvania and the Pocono Mountains. Isolated (?) populations occur farther north along the Delaware River in Pike and Wayne counties.

STATUS: Not listed.

REFERENCES: 119; 131; 247; 280; 312; 364; 368; 380; 383; 406; 408; 424; 512; 514; 583; 668; 692; 699; 700; 709; 711; 715; 730; 769; 778; 783; 793; 819; 829; 831; 832; 865; 871; 901; 943.

51. NORTHERN COAL SKINK
EUMECES A. ANTHRACINUS (BAIRD)

SYNONYMY:

Plestiodon anthracinus Baird, 1850b:294. Type-locality, "North Mountain, near Carlisle [Cumberland Co.], Pennsylvania (see remarks).

Eumeces anthracinus: Cope, 1875:45.

PENNSYLVANIA SUBSPECIES:

Eumeces anthracinus anthracinus: Smith, 1946a:85.

DISTRIBUTION: Scattered localities on the Allegheny Plateau and in the northcentral mountains of Pennsylvania, southward to Nittany Mountain, Centre and Union cos.; an isolated (?) population in Cumberland Co. (see remarks).

STATUS: Status undetermined.

REMARKS: Populations of *Eumeces anthracinus* are scattered and extremely localized, and it is a rarely-taken species throughout its range. Studies are needed to determine the precise ecological requirements of *E. anthracinus* in Pennsylvania, and to more clearly define the geographic range.

The type-locality, given by Baird (1850b) as "North Mountain, near Carlisle," could not be located on available maps. The nearest North Mountain that could be found is the easternmost ridge of the Ridge and Valley Section, in western Franklin County. Perhaps "North Mountain" was a *lapsus* for South Mountain, which is near Carlisle and was a favorite Baird collecting locality. On the map the type-locality is indicated as the vicinity of Carlisle.

REFERENCES: 184; 245; 247; 272; 280; 423; 424; 512; 514; 692; 699; 700; 709; 711; 715; 769; 793; 830; 831; 839; 856; 857; 858; 859; 860; 865; 871; 892.

52. FIVE-LINED SKINK

***EUMECES FASCIATUS* (LINNAEUS)**

SYNONYMY:

Lacerta fasciata Linnaeus, 1758:209. Type-locality, "Carolina," restricted to Charleston, South Carolina, by Schmidt (1953:148).

Eumeces fasciatus: Cope, 1875:45.

DISTRIBUTION: The southern two-thirds of Pennsylvania, northward west of the mountains to Crawford and Forest counties, and east of the mountains south of a line through Clinton, Montour, Berks, and Bucks counties. Locality records are sparse and scattered in the mountains and the southeastern quarter of the state.

STATUS: Not listed.

REFERENCES: 119; 126; 131; 247; 272; 280; 512; 514; 520; 549; 606; 611; 668; 692; 699; 700; 709; 711; 715; 730; 769; 778; 793; 819; 831; 865; 871; 884; 892; 901; 943.

53. BROAD-HEADED SKINK

***EUMECES LATICEPS* (SCHNEIDER)**

SYNONYMY:

Scincus laticeps Schneider, 1801:189. Type-locality, unknown, designated as Charleston, South Carolina, by Schmidt (1953:148).

Eumeces laticeps: Peters, 1864:49.

DISTRIBUTION: Extreme southeastern Pennsylvania, in Chester and York (?) counties (see remarks).

STATUS: Vulnerable.

REMARKS: *Eumeces laticeps* reaches the northern limit of its geographic range in southeastern Pennsylvania. Taylor (1935) suggested that a specimen from York Furnace, York Co., cited by Stone (1906) as *E. fasciatus*, "may be *laticeps*." The only unquestioned locality record for *E. laticeps* in Pennsylvania is West Chester, Chester Co. (CM 37513). *Eumeces laticeps* is certainly vulnerable to extirpation from the Pennsylvania fauna in the heavily urbanized environment of southeastern Pennsylvania.

REFERENCES: 247; 301; 432; 512; 514; 629; 700; 709; 711; 715; 732; 793; 796; 831; 865; 892.

54. KIRTLAND'S SNAKE

***CLONOPHIS KIRTLANDI* (KENNICOTT)**

SYNONYMY:

Regina kirtlandii Kennicott, 1856:95. Type-locality, "northern Illinois."

Clonophis kirtlandii: Cope, 1889a:391; Rossman, 1963a:20-23.

DISTRIBUTION: Western Pennsylvania; recorded from four counties west of the mountains (see remarks).

STATUS: Status undetermined.

REMARKS: *Clonophis kirtlandii* is an exceedingly rare snake with a limited distribution in Pennsylvania. Moreover, five of the 10 known localities are in the suburbs of Pittsburgh, Allegheny Co., and are thus vulnerable to destruction. Other authors (Conant, 1943c; Minton, 1972) have commented on the tendency of *Clonophis* to live in vacant lots and ravines in urban areas, and on the precarious future of such populations.

The localities in the Delaware River Valley, one of them in Delaware Co., Pennsylvania (Conant, 1943c), remain enigmatic. No additional specimens have been found, and the voucher specimens that exist are almost certainly either mislabeled or escaped captive snakes.

REFERENCES: 119; 242; 254; 273; 279; 510; 514; 578; 699; 700; 709; 711; 715; 769; 771; 792; 793; 801; 819; 858; 859; 860; 865; 869; 878; 884; 941; 942.

55. QUEEN SNAKE

***REGINA SEPTEMVITTATA* (SAY)**

SYNONYMY:

Coluber septemvittatus Say, 1825b:240. Type-locality, "Pennsylvania," see remarks.

Regina septemvittata: Smith and Huheey, 1960:156.

DISTRIBUTION: Western Pennsylvania, from Lake Erie southward west of the Allegheny Plateau and the Allegheny Mountains; southeastern Pennsylvania from the Great Valley (Cumberland Co.) and the Susquehanna Valley (Dauphin Co.) southeastward.

STATUS: Not listed (see remarks).

REMARKS: *Regina septemvittata* has disappeared from many localities in southwestern Pennsylvania, because of extirpation of its primary food organism, crayfish. Populations of *Regina septemvittata* should be carefully monitored, to determine whether it is a candidate for listing as a species of special concern.

Cope (1900) incorrectly listed a specimen from Carlisle, Cumberland Co., as the "type" of *R. septemvittata*, and the error was repeated by Neill (1963a). Say (1825b) did not specify the type-locality of *Coluber septemvittatus* other than to mention

"Pennsylvania," but he described a specimen from Germantown (=Philadelphia). Philadelphia should then stand as the restricted type-locality.

REFERENCES: 119; 129; 131; 235; 247; 250; 256; 278; 280; 301; 312; 324; 378; 380; 406; 479; 480; 510; 514; 548; 549; 558; 636; 668; 679; 699; 700; 703; 709; 711; 715; 728; 769; 778; 786; 793; 819; 856; 857; 858; 859; 860; 865; 869; 884; 941; 942; 943.

56. NORTHERN WATER SNAKE *NERODIA S. SIPEDON* (LINNAEUS)

SYNONYMY:

Coluber sipedon Linnaeus, 1758:219. Type-locality, "North America," restricted to the vicinity of New York City by Schmidt (1953:161).

Nerodia sipedon: Baird and Girard, 1853:38; Rossman and Eberle, 1977:42.

PENNSYLVANIA SUBSPECIES:

Natrix sipedon sipedon: Stejneger and Barbour, 1917:96.

Coluber poecilogaster Wied, 1839:106. Type-locality, "Dutotsburg, near Delaware Water Gap, Pennsylvania."

DISTRIBUTION: Statewide.

STATUS: Not listed.

REMARKS: Some of the records of *Nerodia erythrogaster* from Pennsylvania (Dunn and Allen, 1935; Netting, 1939d) were based on misidentified specimens of *N. sipedon* (Conant, 1943b).

REFERENCES: 1; 19; 25; 27; 28; 29; 30; 31; 32; 33; 35; 36; 37; 38; 41; 44; 45; 46; 47; 48; 49; 50; 52; 53; 54; 55; 56; 57; 59; 60; 62; 64; 65; 66; 67; 68; 75; 78; 79; 80; 84; 85; 86; 89; 92; 93; 95; 96; 97; 98; 119; 129; 131; 137; 163; 189; 202; 220; 235; 239; 255; 279; 280; 300; 301; 312; 324; 326; 329; 364; 377; 378; 401; 406; 408; 409; 479; 480; 510; 514; 520; 548; 550; 552; 558; 562; 568; 575; 583; 598; 605; 609; 618; 627; 635a; 636; 658; 668; 673; 699; 700; 703; 709; 711; 715; 728; 730; 731; 768; 769; 778; 793; 800; 801; 819; 863; 865; 869; 874; 877; 884; 885; 886; 887; 889; 901; 902; 903; 941; 942; 943; 947.

57. NORTHERN BROWN SNAKE *STORERIA D. DEKAYI* (HOLBROOK)

SYNONYMY:

Tropidonotus dekayi Holbrook, 1842 (4):53. Type-locality, "Massachusetts and New York," restricted to Cambridge, Massachusetts by Schmidt (1953:165).

Storeria dekayi: Baird and Girard, 1853:135.

PENNSYLVANIA SUBSPECIES:

Storeria dekayi dekayi: Trapido, 1944:47 (see remarks).

DISTRIBUTION: Possibly statewide, but locality records are sparse in the eastern two-thirds of the state, and entirely absent in the northern section of the Allegheny Mountains and the northern tier of counties east of the Allegheny Plateau.

STATUS: Not listed.

REMARKS: *Storeria dekayi* is characteristically an abundant species where it occurs, so the apparent absence of records from a large section of northern and eastern Pennsylvania strongly suggests that the species is not statewide in distribution. *Storeria dekayi* is known from one additional county not shown on the map—Centre Co. (CU 2198).

Trapido (1944) suggested that populations of *S. dekayi* from extreme western Pennsylvania and eastern Ohio are intergrades between the subspecies *S. d. dekayi* and *S. dekayi wrightorum*. I concur with the conclusion of Conant (1951a) that geographic variation in *Storeria dekayi* merits further careful study, based on more adequate series of specimens than were available to Trapido.

REFERENCES: 119; 129; 131; 184; 220; 234; 235; 280; 312; 378; 380; 406; 408; 503; 514; 520; 522; 558; 583; 592; 627; 635; 636; 668; 689; 699; 700; 703; 709; 711; 715; 728; 730; 769; 819; 863; 865; 868; 869; 874; 877; 884; 900; 941; 942; 943.

58. NORTHERN REDBELLIED SNAKE *STORERIA O. OCCIPITOMACULATA* (STORER)

SYNONYMY:

Coluber occipito-maculatus Storer, 1839:230. Type-locality, "Amherst, Massachusetts."

Storeria occipito-maculata: Baird and Girard, 1853:137.

PENNSYLVANIA SUBSPECIES:

Storeria occipitomaculata occipitomaculata: Trapido, 1944:20.

DISTRIBUTION: Possibly statewide, but most common in the mountains and the northern counties (see remarks).

STATUS: Not listed.

REMARKS: *Storeria occipitomaculata* is an abundant species on the Allegheny Plateau, throughout the Allegheny Mountains and the Ridge and Valley Section, and in the Pocono Mountains. West of the mountains, and in the southeastern quarter of the state, the species is relatively rare and populations are highly localized. The ranges of *S. occipitomaculata* and *S. dekayi* in Pennsylvania are in general

complementary, although the species do not exactly replace one another.

Records from Allegheny Co. (Cope, 1900; Atkinson, 1901) and Lancaster Co. (Roddy, 1928) are unsupported by recent collections. *Storeria occipitomaculata* is also known from Blair Co. (CM 14585; no specific locality) and Diamond Valley, Huntingdon Co. (ANSP 16599).

REFERENCES: 119; 129; 131; 184; 220; 235; 239; 280; 287; 378; 440; 503; 514; 582; 583; 592; 636; 699; 700; 703; 709; 711; 715; 730; 769; 819; 848; 863; 865; 869; 884; 900; 941; 942; 943.

59. SHORTHEADED GARTER SNAKE

THAMNOPHIS BRACHYSTOMA (COPE)

SYNONYMY:

Eutaenia brachystoma Cope, 1892:964. Type-locality, “. . . near Franklin, Venango County, Pennsylvania, on the Allegheny River.”

Thamnophis brachystoma: Smith, 1945c:149. See remarks.

DISTRIBUTION: The Allegheny Plateau, from Erie, Warren, McKean, and Potter counties along the New York border, south to Mercer, Venango, Clarion, and Jefferson counties. Introduced and established in Allegheny, Butler, and Erie counties (see remarks).

STATUS: Not listed.

REMARKS: Within the area of its natural range, on the Allegheny Plateau, *Thamnophis brachystoma* is characteristically extremely common, and the edges of the range are sharply defined by abrupt disappearance of this species (Conant, 1950). Yet *Thamnophis brachystoma*, when introduced outside this range, becomes established with ease. Established populations have been extant in Pittsburgh for over 20 years, and other extralimital populations are established in Butler and Erie counties (Price, 1978). Netting (*in* Conant, 1950) regarded the Mercer County records as introductions.

Thamnophis brachystoma has had a checkered taxonomic history (Barton, 1956). Although originally described as a distinct species, it was later regarded as a “dwarfed” *Thamnophis sirtalis* (Brown, 1901), as a synonym of *Thamnophis butleri* (Ruthven, 1908), or as a subspecies of *Thamnophis radix* (Smith, 1949). Conant (1950) finally pointed out the distinctive characters and allopatric distribution of *T. brachystoma*.

REFERENCES: 118; 147; 170; 171; 183; 184; 200; 226; 244; 277; 279; 280; 378; 403; 494; 514; 516; 582; 699; 700; 709; 711; 715;

744; 763; 781; 790; 793; 820; 821; 856; 857; 858; 859; 860; 865; 884; 937; 941; 942.

60. EASTERN RIBBON SNAKE

THAMNOPHIS SAURITUS (LINNAEUS)

SYNONYMY:

Coluber saurita Linnaeus, 1766:385. Type-locality, “Carolina.”

Thamnophis saurita: Fitzinger, 1843:26.

PENNSYLVANIA SUBSPECIES:

(1) Eastern Ribbon Snake *Thamnophis s. sauritus* (Linnaeus)

Thamnophis sauritus sauritus: Ruthven, 1908:122.

(2) Northern Ribbon Snake *Thamnophis sauritus septentrionalis* Rossman

Thamnophis sauritus septentrionalis Rossman, 1963b:159. Type-locality, “Michigan Hollow, near Ithaca, Tompkins County, New York.”

DISTRIBUTION: Western Pennsylvania, west of the Allegheny Mountains and the Allegheny Plateau; all of eastern Pennsylvania from the Allegheny Front eastward, including the Poconos (see remarks).

STATUS: Not listed.

REMARKS: The allocation of Pennsylvania ribbon snakes to subspecies, and the location of the zone of intergradation between the subspecies *T. s. sauritus* and *T. sauritus septentrionalis*, remain to be precisely established. Rossman (1963b:160) noted that ribbon snakes from the vicinity of Pittsburgh “probably are intergrades.” Presumably, the western Pennsylvania populations from Beaver and Butler counties northward represent *T. sauritus septentrionalis*. Ribbon snakes from central and southeastern Pennsylvania are *T. sauritus sauritus*, but the subspecific identity of populations in the northeastern counties is uncertain.

Thamnophis sauritus is apparently absent from the Allegheny Mountains, although a published report, unsubstantiated by a voucher specimen, exists for Bedford County (Knepp, 1941). *Thamnophis sauritus* has also been reported from Lebanon Co. (Surface, 1906; Heilman, 1951), and a specimen without precise locality data is available from Indiana Co. (USNM 7223).

REFERENCES: 119; 129; 131; 220; 235; 280; 312; 378; 394; 406; 408; 438; 494; 514; 520; 548; 549; 558; 584; 592; 612; 635; 636; 668; 699; 700; 703; 709; 711; 715; 730; 769; 772; 773; 778; 781; 863; 865; 869; 874; 884; 901; 941; 942; 943.

61. EASTERN GARTER SNAKE

***THAMNOPHIS S. SIRTALIS* (LINNAEUS)**

SYNONYMY:

Coluber sirtalis Linnaeus, 1758:222. Type-locality, "Pennsylvania" (see remarks).

Thamnophis sirtalis: S. Garman, 1892:104.

PENNSYLVANIA SUBSPECIES:

Eutaenia sirtalis sirtalis: Cope, 1875:41. See remarks.

DISTRIBUTION: Statewide.

STATUS: Not listed.

REMARKS: The "subspecies" *Eutaenia sirtalis dorsalis*, *E. s. ordinata*, and *E. s. semifasciata* listed for Allegheny County by Atkinson (1901) are not subspecies in the modern taxonomic sense. These names refer instead to color varieties of the highly polymorphic species *T. sirtalis*.

Evans and China (1966) reported the opinion of the International Commission on Zoological Nomenclature that *Thamnophis sirtalis* is to be interpreted from the description and type-locality ("Pennsylvania") given for *Coluber sirtalis* by Harlan (1827).

REFERENCES: 119; 129; 131; 137; 143; 163; 184; 220; 235; 239; 254; 256; 280; 284; 299; 305; 312; 322; 324; 362a; 364; 378; 383; 387; 392a; 401; 406; 407; 408; 466; 479; 480; 494; 514; 520; 522; 558; 575; 576; 582; 583; 592; 609; 627; 635; 635a; 636; 667; 668; 689; 699; 700; 703; 709; 711; 715; 728; 769; 775; 778; 781; 812; 819; 863; 865; 869; 877; 884; 893; 901; 925; 937; 941; 942; 943.

62. SMOOTH EARTH SNAKE

***VIRGINIA VALERIAE* BAIRD AND GIRARD**

SYNONYMY:

Virginia valeriae Baird and Girard, 1853:127. Type-locality, "Kent County, Maryland."

PENNSYLVANIA SUBSPECIES:

(1) Eastern Earth Snake *Virginia valeriae valeriae* Baird and Girard

Virginia valeriae valeriae: Blanchard, 1923:350.

(2) Mountain Earth Snake *Virginia valeriae pulchra* (Richmond)

Haldea valeria pulchra Richmond, 1954:251. Type-locality, "Four miles North of Van, Venango Co., Pa."

Virginia valeriae pulchra: Clark, 1964:33.

DISTRIBUTION: The Allegheny Mountains, from Fayette and Somerset counties north to Potter Co., and

the Allegheny Plateau in Clarion, Forest, Venango, and Warren counties (subspecies *pulchra*); south-eastern Pennsylvania in Berks, Chester, and Montgomery counties (subspecies *valeriae*).

STATUS: Not listed.

REMARKS: Records of "*Virginia valeriae elegans*" from western Pennsylvania (Stejneger and Barbour, 1939), undoubtedly refer to *V. valeriae pulchra*, which shares some scalation characters with *V. valeriae elegans*.

The record of *Virginia* from Allegheny Co. (Atkinson, 1901) is almost certainly based on a mislabeled specimen (Richmond, 1954:253-254). The published report of *Virginia valeriae* from Lancaster Co. (Roddy, 1928) is based on a misidentified *Storeria dekayi* (Conant, 1936).

REFERENCES: 119; 131; 184; 225; 234; 235; 245; 258; 514; 558; 699; 700; 709; 711; 715; 734; 764; 769; 793; 819; 859; 860; 869; 884; 941; 942.

63. EASTERN HOGNOSE SNAKE

***HETERODON PLATYRHINOS* LATREILLE**

SYNONYMY:

Heterodon platyrhinos Latreille, in Sonnini and Latreille, 1801 (4):32. Type-locality, designated as the vicinity of Philadelphia by Schmidt (1953:178).

Coluber heterodon Daudin, 1803b:153. Type-locality, vicinity of Philadelphia (Schmidt, 1953:179).

Coluber thraso Harlan, 1835a:120. Type-locality, "from Broad river emptying into the Delaware at its origin . . . Pennsylvania."

DISTRIBUTION: Scattered localities in western Pennsylvania along Lake Erie, and in Allegheny, Armstrong, Indiana, and Somerset counties; generally distributed in eastern Pennsylvania east of the Allegheny Front, south of Centre and Wyoming counties.

STATUS: Status undetermined (see remarks).

REMARKS: Although *Heterodon platyrhinos* has an extensive geographic range in Pennsylvania, populations are localized in areas with suitably sandy, friable soil. It is nowhere abundant, and casual observations suggest that numbers of hognose snakes have declined in recent years (Platt, 1969:393-394).

REFERENCES: 129; 131; 137; 189; 220; 235; 280; 331; 332; 333; 364; 380; 386; 480; 503; 514; 546; 549; 583; 584; 634; 668; 687; 688; 699; 700; 703; 709; 711; 715; 730; 736; 753; 769; 778; 793; 811; 863; 865; 869; 901; 941; 942; 943.

64. NORTHERN RINGNECK SNAKE
DIADOPHIS PUNCTATUS EDWARDSII
 (MERREM)

SYNONYMY:

Coluber Edwardsii Merrem, 1820:136. Type-locality, "Pennsylvania," restricted to the vicinity of Philadelphia by Schmidt (1953:183).

PENNSYLVANIA SUBSPECIES:

Diadophis punctatus edwardsii: Barbour, 1919:9.
Coluber torquatus Shaw (*nec* Lacépède), 1802:553.
 Type-locality, "Pennsylvania."

DISTRIBUTION: Statewide.

STATUS: Not listed.

REMARKS: Populations of *Diadophis punctatus* from the Del-Mar-Va Peninsula and northward into New Jersey are considered intergrades between the subspecies *D. p. punctatus* and *D. punctatus edwardsii*. Conant (1946) discussed variation in these populations in relation to *Diadophis* in eastern Pennsylvania.

Diadophis punctatus has also been reported from Bushman, Blair Co. (Surface, 1906), a locality that could not be found on available maps.

REFERENCES: 119; 129; 131; 134; 182; 184; 220; 239; 243; 264; 280; 324; 363; 378; 386; 408; 466; 503; 514; 520; 546; 549; 558; 583; 592; 627; 635a; 636; 668; 699; 700; 703; 704; 709; 711; 715; 730; 769; 778; 793; 811; 819; 857; 858; 859; 860; 863; 865; 869; 884; 941; 942; 943.

65. EASTERN WORM SNAKE
CARPHOPHIS A. AMOENUS (SAY)

SYNONYMY:

Coluber amoenus Say, 1825b:237. Type-locality, "Pennsylvania," restricted to the vicinity of Philadelphia by Schmidt (1953:184).
Carphophis amoena: Gervais, 1843:191.

PENNSYLVANIA SUBSPECIES:

Carphophis amoenus amoenus: Jan, 1863:33 (by inference).

DISTRIBUTION: Southeastern Pennsylvania east of the Allegheny Mountains, northward to Lycoming and Monroe counties (see remarks).

STATUS: Not listed.

REMARKS: The few records of *Carphophis* from Pennsylvania west of the Allegheny Mountains are unsupported by recent collections, and require verification. Atkinson's (1901) reports from Allegheny

and Greene counties are probably based on mislabeled or misidentified specimens. An old record from Foxburg, Clarion Co. (USNM 1870), has been repeatedly cited in the literature (Yarrow, 1882; Cope, 1900; and others) but *Carphophis* has not been taken again in this relatively well-collected section of Pennsylvania. H. B. Bechtel (personal communication) informed me that he collected *Carphophis* on the west side of Laurel Ridge, near Johnstown (probably in Westmoreland Co.) sometime before 1940. Unfortunately, these specimens cannot now be located.

Carphophis has also been reported, without specific locality data, from Bedford (Knepp, 1937), and Lancaster (Stauffer, *in* Mombert, 1869) counties.

REFERENCES: 119; 129; 131; 162; 189; 235; 247; 263; 280; 301; 324; 386; 406; 462; 479; 480; 494; 514; 583; 585; 668; 699; 700; 709; 711; 715; 769; 778; 786; 793; 856; 857; 858; 859; 860; 865; 869; 873; 941; 942; 943.

66. NORTHERN BLACK RACER
COLUBER C. CONSTRICTOR LINNAEUS

SYNONYMY:

Coluber constrictor Linnaeus, 1758:216 (part).
 Type-locality, "America septentrionale," restricted to the vicinity of Philadelphia by Dunn and Wood (1939).

PENNSYLVANIA SUBSPECIES:

Basicanium constrictor constrictor: Cope, 1875:40 (by inference).

DISTRIBUTION: Statewide.

STATUS: Not listed.

REMARKS: *Coluber constrictor* has been collected at Camp Shand, Lancaster Co. (Roddy, 1928), which could not be found on maps, and in Snyder Co. (PSU 382, no specific locality).

REFERENCES: 119; 123; 129; 131; 137; 220; 235; 238; 239; 280; 312; 324; 328; 364; 378; 386; 406; 408; 501; 514; 520; 555; 558; 583; 615; 627; 668; 688; 699; 700; 703; 709; 711; 715; 724a; 728; 730; 737; 766; 769; 778; 819; 863; 865; 869; 884; 941; 942; 943.

67. ROUGH GREEN SNAKE
OPHEODRYS AESTIVUS (LINNAEUS)

SYNONYMY:

Coluber aestivus Linnaeus, 1766:387. Type-locality, "Carolina," restricted to Charleston, South Carolina, by Schmidt (1953:191).

Opheodrys aestivus: Cope, 1860c:560.

DISTRIBUTION: Extreme southwestern and extreme southeastern counties of Pennsylvania (see remarks).

STATUS: Vulnerable.

REMARKS: *Opheodrys aestivus* remains one of the most elusive members of the Pennsylvania herpetofauna. Atkinson (1901) reported *O. aestivus* from Carnegie, Allegheny Co., and Pawling (1939) cited a specimen from Turtleville, Union Co., in the Susquehanna Valley. Surface (1906) cited records from Dauphin and Lancaster counties, and Roddy (1928) stated that the species "is seen frequently" in Pequea, Lancaster Co. S. H. Harwig (personal communication) once found a dead specimen near Waterford, Westmoreland Co., and H. D. Yoder (notes in CM) collected a specimen between Scottsdale and Dawson, Westmoreland Co. Fowler's (1915) record of "*O. vernalis*" from near Swarthmore, Delaware Co., possibly was based on a specimen of *O. aestivus*.

Despite this seeming abundance of records, all available Pennsylvania specimens are from two localities—Ninevah, Greene Co. (CM 1322), and Horseshoe Camp (on Octoraro Creek at the Maryland border), Chester Co. (CM). *Opheodrys aestivus* should be sought in the southeastern and southwestern border counties, and the exact northern limits of its range in Pennsylvania remain to be established. A record from near Milford, Pike Co. (Evermann, 1918) was probably based on a misidentified *O. vernalis*.

REFERENCES: 119; 131; 265; 364; 378; 386; 494; 514; 546; 549; 668; 699; 700; 709; 711; 715; 730; 769; 778; 863; 869; 941.

68. EASTERN SMOOTH GREEN SNAKE
OPHEODRYS V. VERNALIS (HARLAN)

SYNONYMY:

Coluber vernalis Harlan, 1827:361. Type-locality, "Pennsylvania and New Jersey," restricted to the vicinity of Philadelphia by Schmidt (1953:191). See remarks.

Opheodrys vernalis: Schmidt and Necker, 1936:63.

PENNSYLVANIA SUBSPECIES:

Opheodrys vernalis vernalis: Grobman, 1941:10.

DISTRIBUTION: Throughout western Pennsylvania, the Allegheny Mountains, northern Pennsylvania, and the Pocono Mountains; southeastward to South Mountain (Adams and Cumberland counties), and Blue Mountain (Berks and Lehigh counties). Absent from southeastern Pennsylvania.

STATUS: Not listed.

REMARKS: The Lancaster Co. record (Roddy, 1928) is questionable. The type-locality restriction by Schmidt (1953) to the vicinity of Philadelphia is inappropriate, as *O. vernalis* does not occur in southeastern Pennsylvania.

REFERENCES: 119; 129; 131; 137; 184; 220; 235; 239; 265; 280; 301; 364; 378; 386; 406; 455; 479; 480; 494; 514; 520; 548; 549; 575; 583; 592; 627; 636; 699; 700; 703; 709; 711; 715; 730; 769; 793; 819; 856; 857; 858; 859; 860; 863; 864; 865; 869; 884; 901; 941; 942; 943.

69. BLACK RAT SNAKE
ELAPHE O. OBSOLETA (SAY)

SYNONYMY:

Coluber obsoletus Say, 1823:140. Type-locality, "Isle au Vache to Council Bluffs on the Missouri River," restricted to Council Bluffs, Iowa by Schmidt (1953:197).

Elaphis obsoletus: Garman, 1883:54.

PENNSYLVANIA SUBSPECIES:

Coluber obsoletus obsoletus: Yarrow, 1882:102.

DISTRIBUTION: Probably statewide, although no locality records are available from the northernmost tier of counties.

STATUS: Not listed.

REMARKS: Surface (1906) reported *E. obsoleta* from Onset, Lebanon Co., Gates, Montour Co., and Cowl, Northumberland Co., none of which could be found on available maps.

REFERENCES: 42; 58; 119; 129; 131; 149; 159; 220; 235; 239; 256; 280; 290; 301; 378; 381; 386; 423; 486; 501; 514; 520; 545; 549; 558; 583; 621; 627; 639; 641; 668; 674; 686; 688; 689; 699; 700; 703; 709; 711; 715; 730; 769; 816; 819; 863; 865; 869; 884; 904; 913; 941; 942; 943.

70. EASTERN MILK SNAKE
LAMPROPELTIS T. TRIANGULUM
(LACÉPÈDE)

SYNONYMY:

Coluber triangulum Lacépède, 1788:86. Type-locality, "America," restricted to the vicinity of New York City, in New York State by Schmidt (1953:208).

Lampropeltis triangua: Cope, 1860b:258.

PENNSYLVANIA SUBSPECIES:

Ophibolus triangulus triangulus: H. Garman, 1892:295.

Coluber eximius Harlan, 1827:360. Type-locality, "Pennsylvania," restricted to the vicinity of Philadelphia by Schmidt (1953:208).

DISTRIBUTION: Statewide.

STATUS: Not listed.

REMARKS: Populations of *Lampropeltis triangulum* in extreme southeastern Pennsylvania, in the Atlantic Coastal Plain and piedmont, were long regarded as intergrades between the subspecies *L. t. triangulum* and *L. triangulum temporalis* (Conant, 1943a; Netting, 1946). Williams (1978:90-99) has shown that populations of *L. triangulum* throughout the coastal plain and piedmont from southern New Jersey through Virginia are intergrades (*L. t. triangulum* \times *elapsoides*), and that *L. triangulum temporalis* is an invalid subspecies based on this intergradient population. The milk snakes of southeastern Pennsylvania, show some "influence" of the nearby zone of intergradation with *L. triangulum elapsoides*.

REFERENCES: 119; 129; 131; 144; 180; 184; 216; 220; 235; 239; 240; 247; 264; 277; 279; 280; 301; 312; 324; 338; 378; 383; 386; 406; 479; 480; 497; 514; 520; 522; 548; 549; 555; 558; 575; 583; 592; 627; 630; 636; 668; 688; 689; 699; 700; 703; 709; 711; 715; 730; 769; 778; 793; 819; 863; 865; 869; 884; 891; 901; 931; 932; 941; 942; 943.

71. NORTHERN COPPERHEAD

AGKISTRODON CONTORTRIX MOKESON (DAUDIN)

SYNONYMY:

Cenchrus mokeson Daudin, 1803a:358. Type-locality, designated as the vicinity of Philadelphia, Pennsylvania, by Gloyd and Conant (1943:149). *Agkistrodon mokeson mokeson*: Gloyd and Conant, 1943:150.

PENNSYLVANIA SUBSPECIES:

Ancistrodon contortrix mokeson: Klauber, 1948:8.

DISTRIBUTION: Statewide south of the northernmost tier of counties.

STATUS: Not listed.

REMARKS: The northern range limit of *Agkistrodon contortrix mokeson* in Pennsylvania generally coincides with the southern limit of glaciation, although Smith (1945a) has shown that copperheads are found at scattered localities within glaciated areas, usually along river valleys. A record from Sugar Grove, Warren Co. (Smith, 1945a), is probably based on a misidentification. A specimen is

available from Brock, Greene Co. (CM), a locality which could not be found on available maps.

REFERENCES: 11; 12; 20; 40; 110; 119; 120; 129; 131; 135; 137; 138; 144; 189; 191; 216; 217; 220; 235; 247; 254; 262; 280; 292; 303; 312; 379; 381; 392; 406; 435; 436; 479; 480; 497; 514; 515; 517; 518; 520; 521; 523; 558; 566; 579; 583; 589; 600; 612; 613; 619; 627; 629; 644; 646; 647; 668; 688; 693; 695; 699; 700; 703; 709; 711; 715; 723; 724; 730; 747; 769; 778; 793; 807; 811; 817; 818; 819; 834; 836; 859; 860; 863; 865; 868; 869; 875; 882; 884; 891; 901; 907; 917; 941; 942; 943; 945.

72. EASTERN MASSASAUGA

SISTRURUS C. CATENATUS (RAFINESQUE)

SYNONYMY:

Crotalinus catenatus Rafinesque, 1818b:41. Type-locality, "prairies of the upper Missouri," restricted to the vicinity of Kansas City, Missouri by Schmidt (1953:226).

Sistrurus catenatus: Garman, 1883:176.

PENNSYLVANIA SUBSPECIES:

Sistrurus catenatus catenatus: Cope, 1900:1146.

DISTRIBUTION: The west-central border of Pennsylvania, from extreme northern Allegheny County northward to southern Crawford County, and east to Venango County (see remarks).

STATUS: Endangered.

REMARKS: *Sistrurus catenatus* in Pennsylvania is a member of the relictual biota of the postglacial "Prairie Peninsula" (Conant, 1978). Historically, the Pennsylvania range of the species included Allegheny, Butler, Crawford, Lawrence, Mercer, and Venango counties. Many populations have been eliminated by damming, drainage, or highway construction in the preferred marshy "old field" habitat (H. K. Reinert, personal communication, 1978). Populations now exist only in Butler, Mercer, Venango, and possibly Crawford counties.

REFERENCES: 10; 11; 12; 39; 119; 120; 121; 138; 191; 217; 220; 247; 254; 279; 379; 381; 413; 434; 506; 514; 518; 523; 580; 592; 647; 688; 690; 693; 695; 699; 700; 709; 711; 715; 717; 741; 742; 743; 761a; 769; 793; 808; 836; 858; 859; 860; 869; 874; 875; 876; 884; 922; 941; 942.

73. TIMBER RATTLESNAKE

CROTALUS HORRIDUS LINNAEUS

SYNONYMY:

Crotalus horridus Linnaeus, 1758:214. Type-locality, "America," restricted to the vicinity of New York City by Schmidt (1953:227).

DISTRIBUTION: Mountainous areas of Pennsylvania, from the Allegheny Mountains and Allegheny Plateau eastward to the Delaware River, and southward to Blue Mountain (Berks and Lehigh counties) and South Mountain (Cumberland and Adams counties). See remarks.

STATUS: Status undetermined.

REMARKS: The range of the Timber Rattlesnake was probably statewide in pre-Colonial times; now it is absent from the western border counties and southeastern Pennsylvania. Continuing pressure on mountain populations and habitats by rattlesnake hunters and others, and the low reproductive potential of northern populations of this species, suggest that the Timber Rattlesnake may be a likely candidate for vulnerable status listing.

Published reports from Philadelphia (Barton, 1744); Harrisville, Butler Co. (Surface, 1906); Hickory, Washington Co. (Surface, 1906); and Elizabethtown, Lancaster Co. (Roddy, 1928) may reflect remnants of the original distribution.

REFERENCES: 7; 11; 12; 13; 14; 18; 21; 22; 23; 24; 26; 99; 113; 116; 119; 120; 129; 131; 135; 137; 138; 145; 149; 152; 157; 179; 191; 195; 213; 216; 217; 220; 232; 235; 239; 254; 262; 278; 280; 283; 285; 289; 297; 298; 303; 306; 307; 362; 379; 397; 421; 433; 434; 471; 479; 480; 485; 505; 506; 508; 514; 515; 517; 518; 520; 522; 523; 532; 551; 570; 580; 583; 590; 594; 600; 611; 615; 619; 620; 627; 629; 647; 668; 669; 671; 675; 676; 677; 688; 689; 693; 695; 699; 700; 703; 709; 711; 715; 724; 729; 730; 735; 746; 769; 777; 779; 780; 789; 793; 808; 809; 810; 812; 819; 836; 847; 849; 851; 863; 865; 869; 875; 884; 891; 898; 901; 906; 926; 941; 942; 943.

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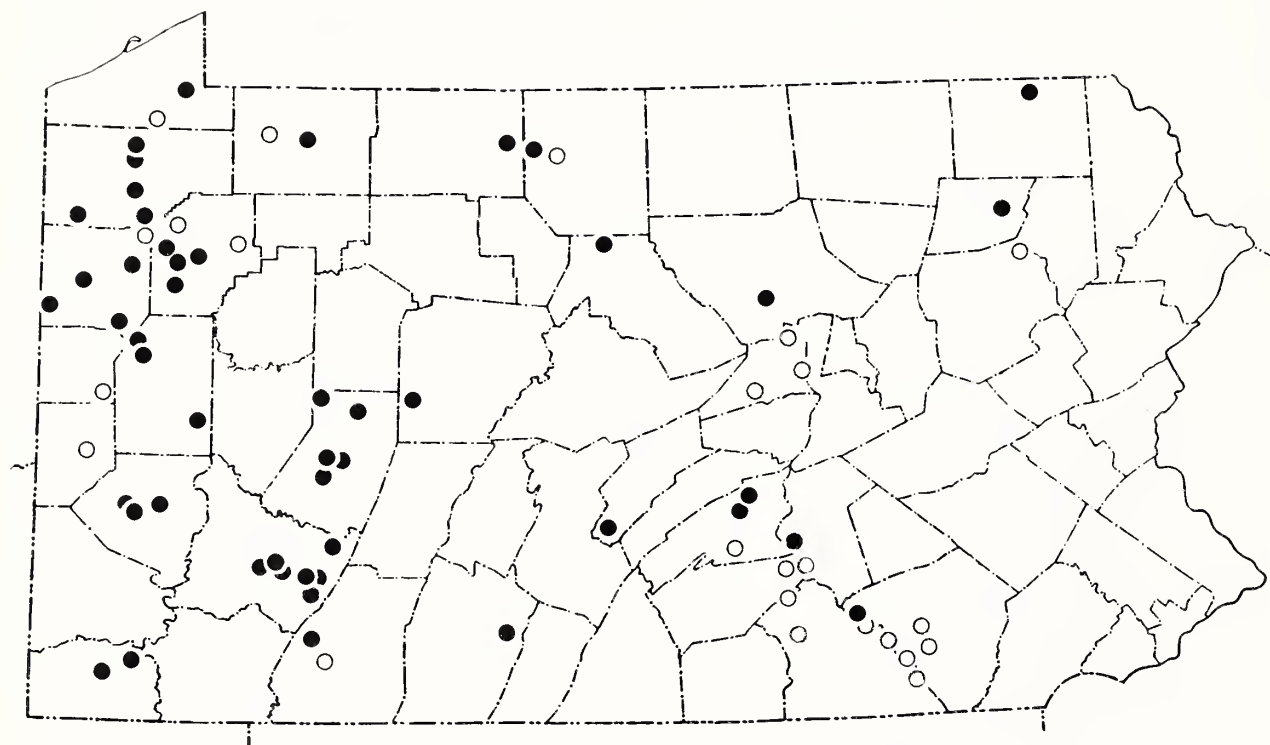
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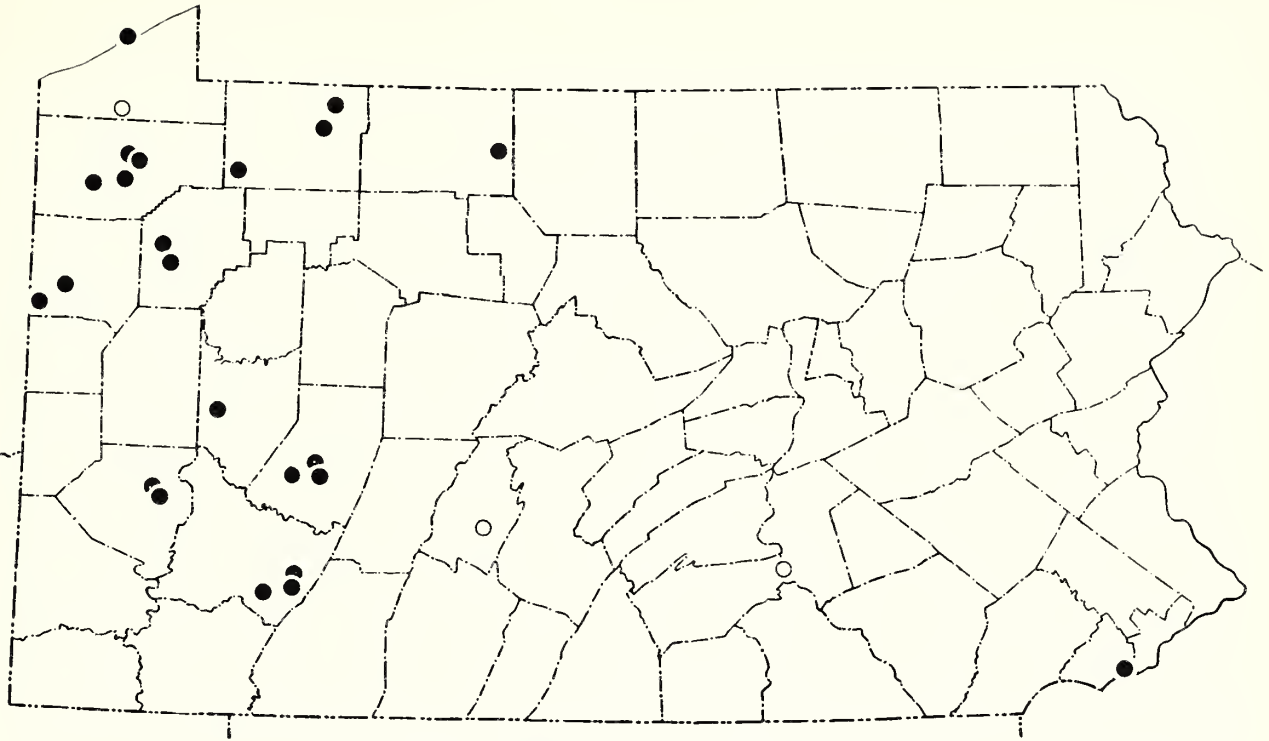
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APPENDIX 1

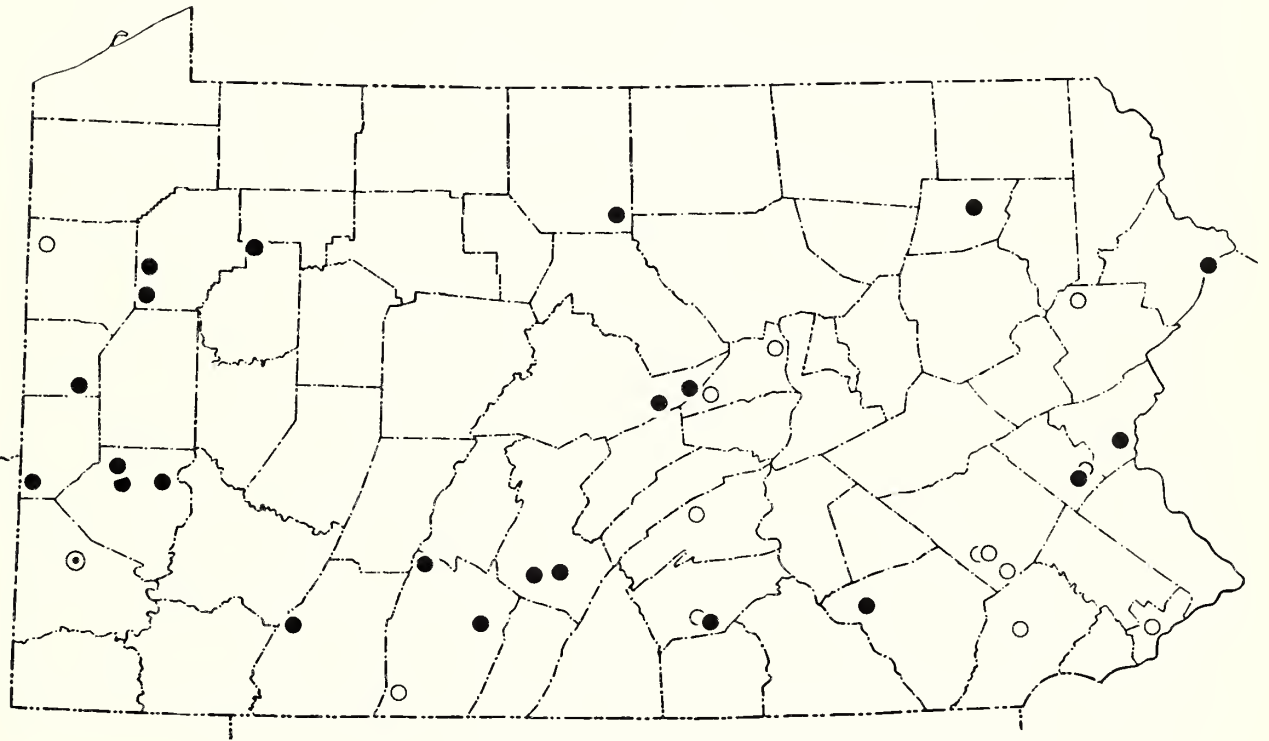
Distribution maps of the amphibians and reptiles in Pennsylvania.



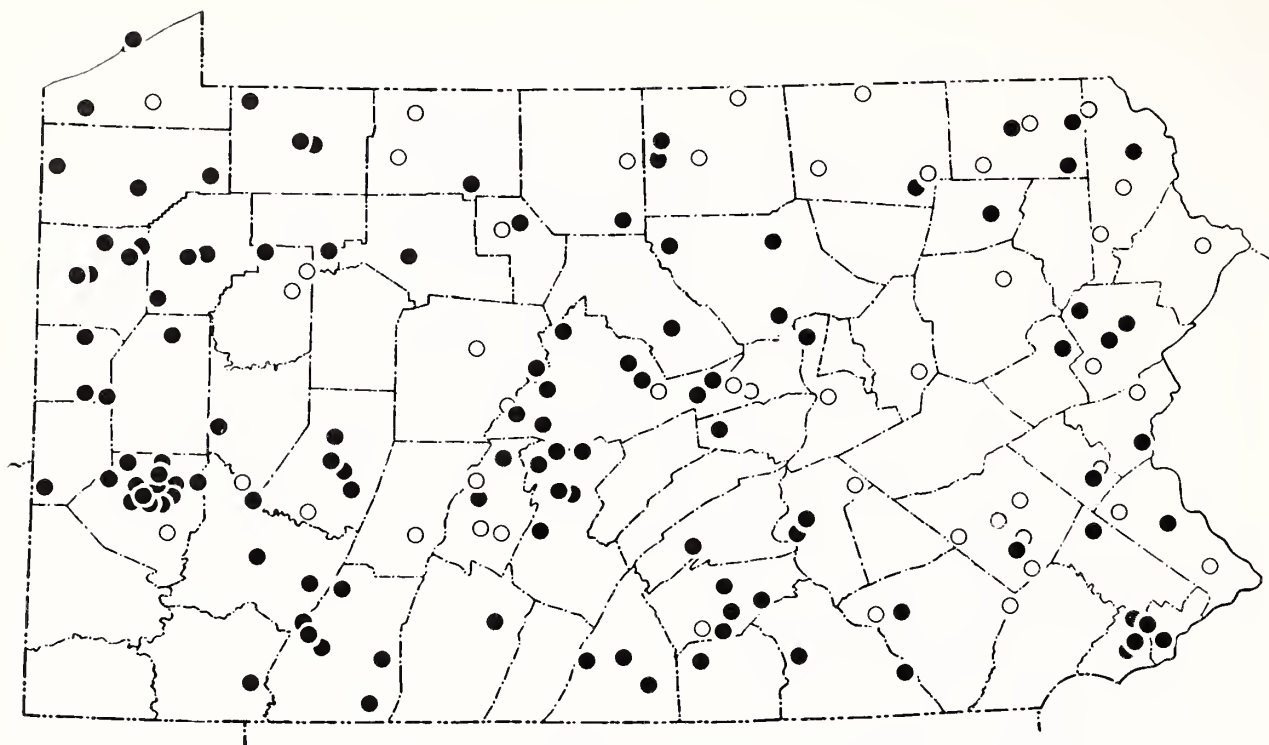
Map 1.—Eastern Hellbender (*Cryptobranchus a. alleganiensis*).



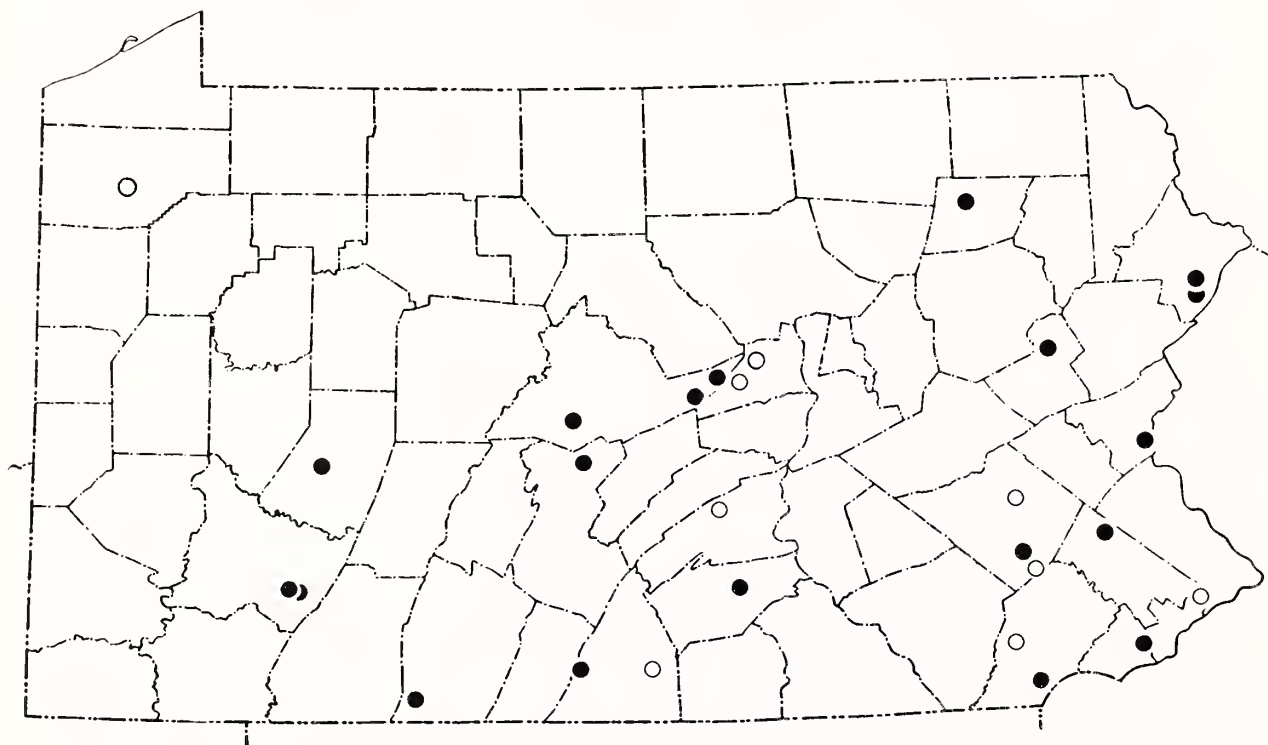
Map 2.—Mudpuppy (*Necturus m. maculosus*).



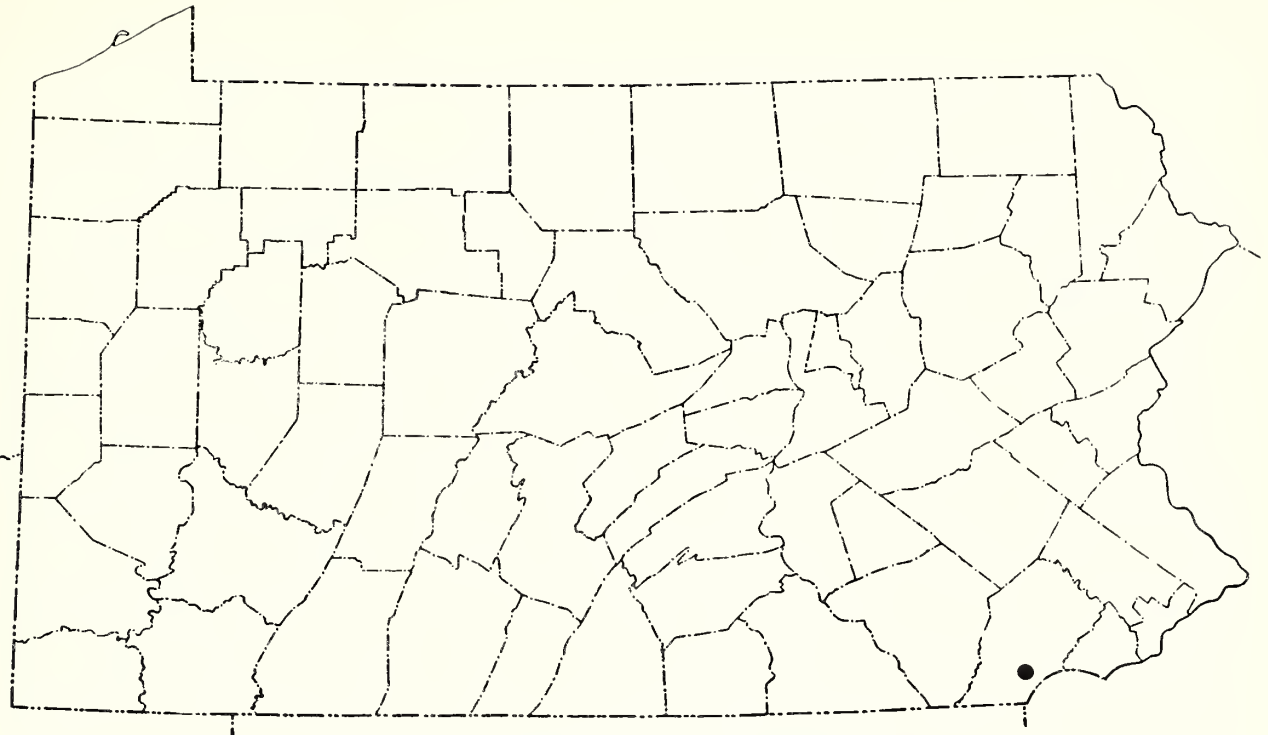
Map 3.—Jefferson Salamander (*Ambystoma jeffersonianum*).



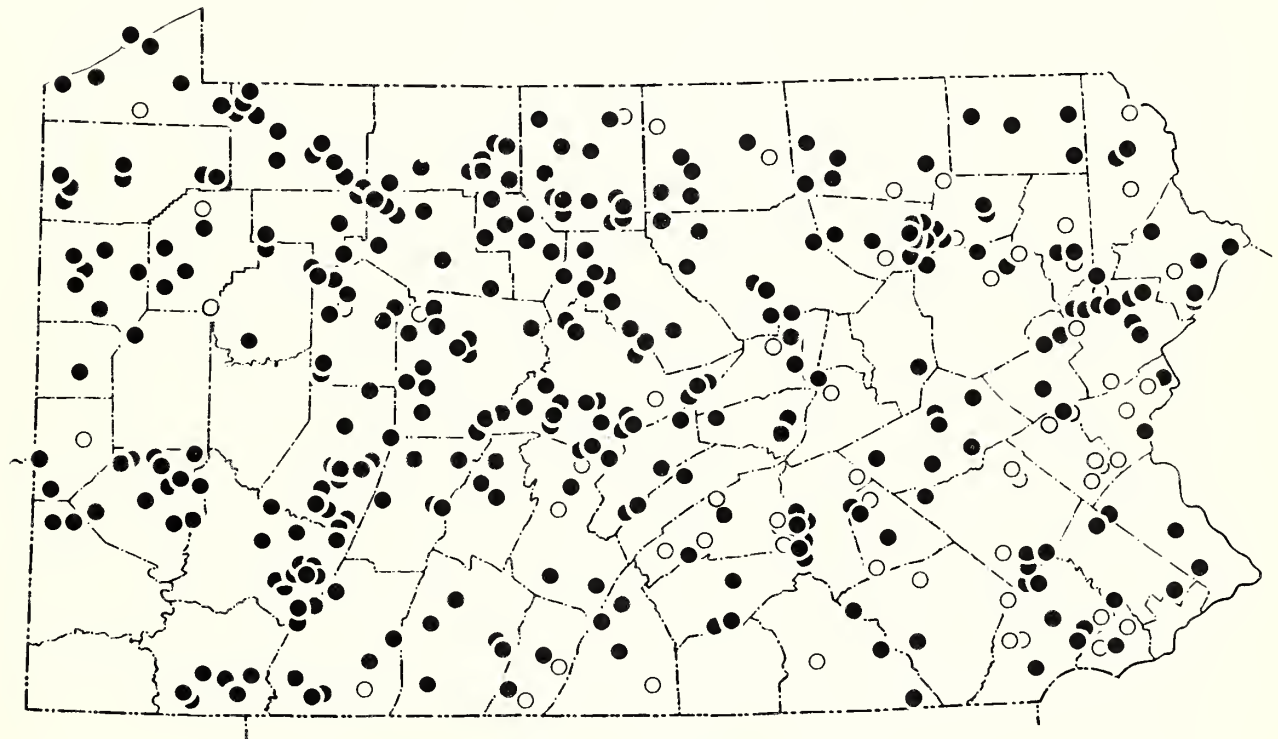
Map 4.—Spotted Salamander (*Ambystoma maculatum*).



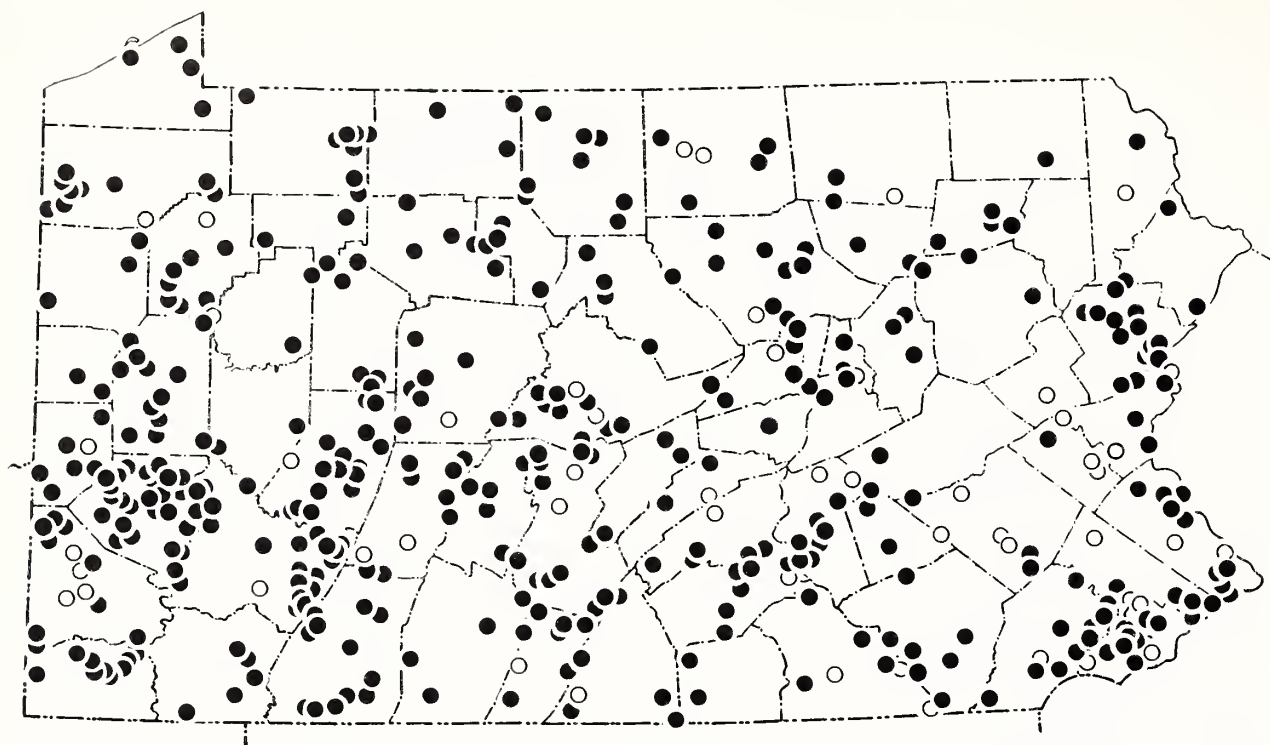
Map 5.—Marbled Salamander (*Ambystoma opacum*).



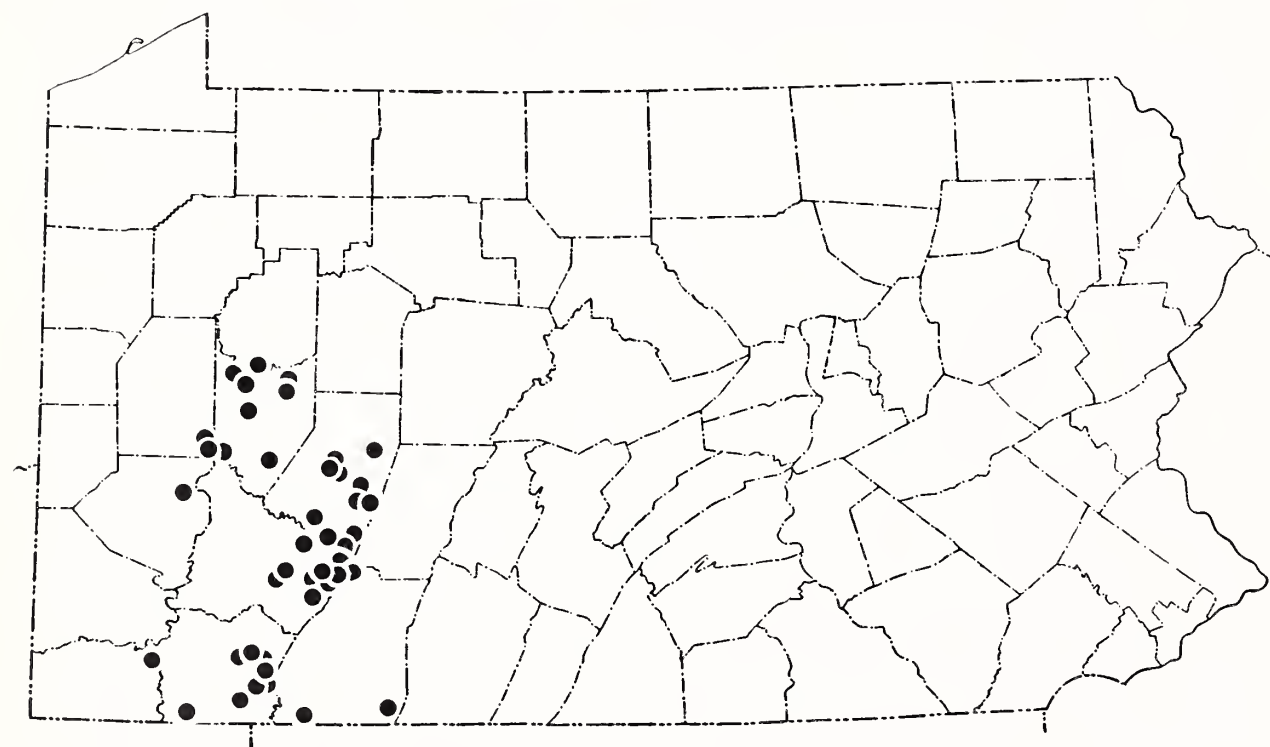
Map 6.—Eastern Tiger Salamander (*Ambystoma t. tigrinum*).



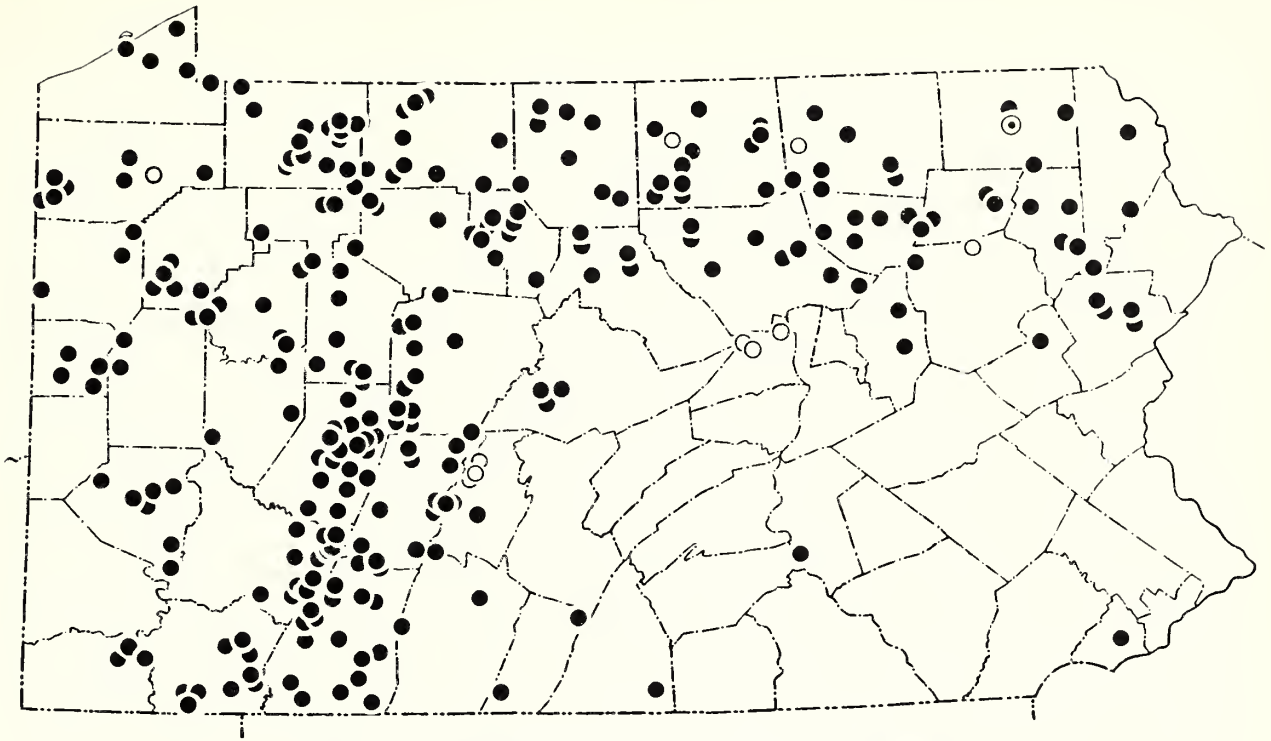
Map 7.—Red-spotted Newt (*Notophthalmus v. viridescens*).



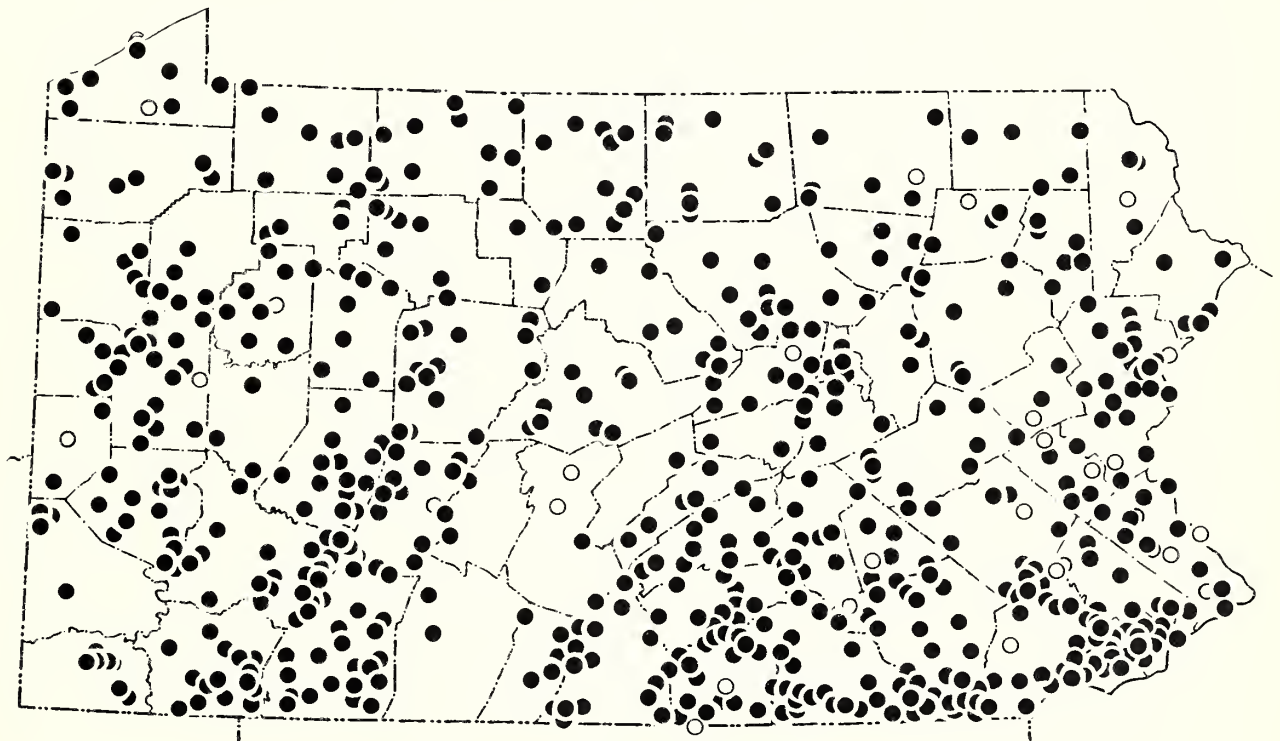
Map 8.—Northern Dusky Salamander (*Desmognathus f. fuscus*).



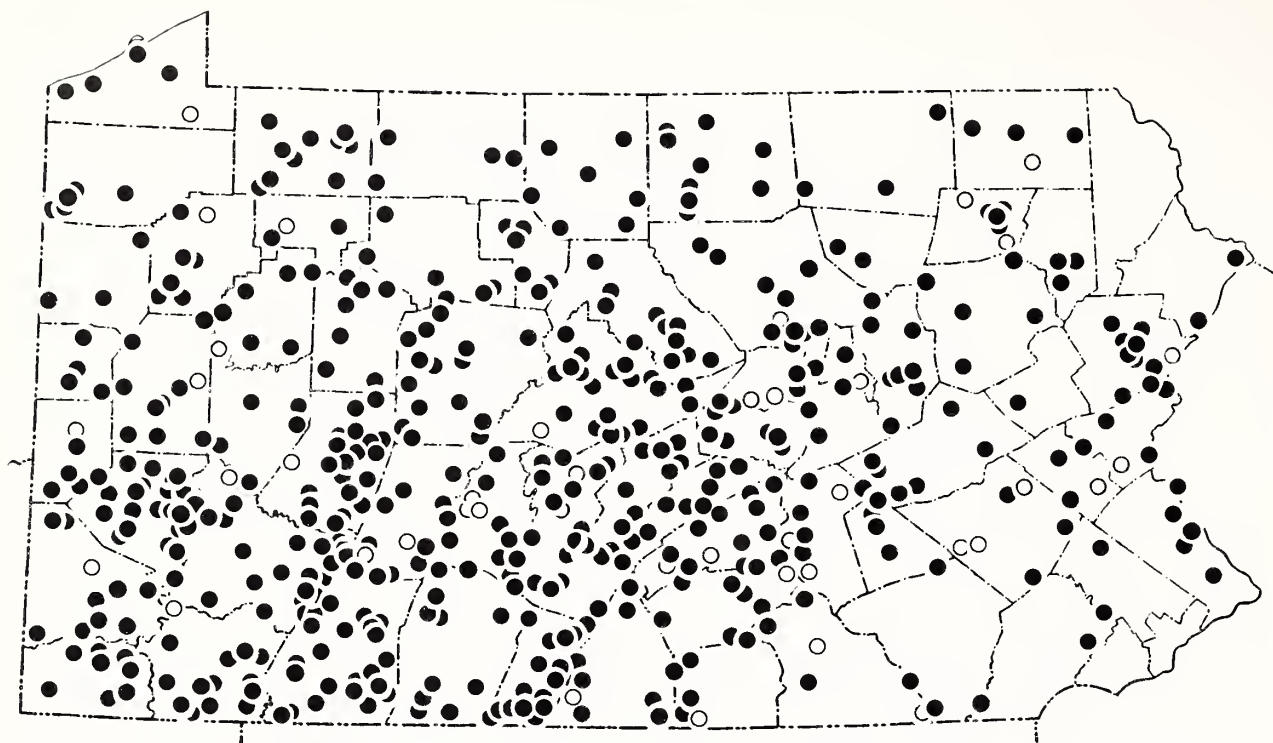
Map 9.—Appalachian Seal Salamander (*Desmognathus m. monticola*).



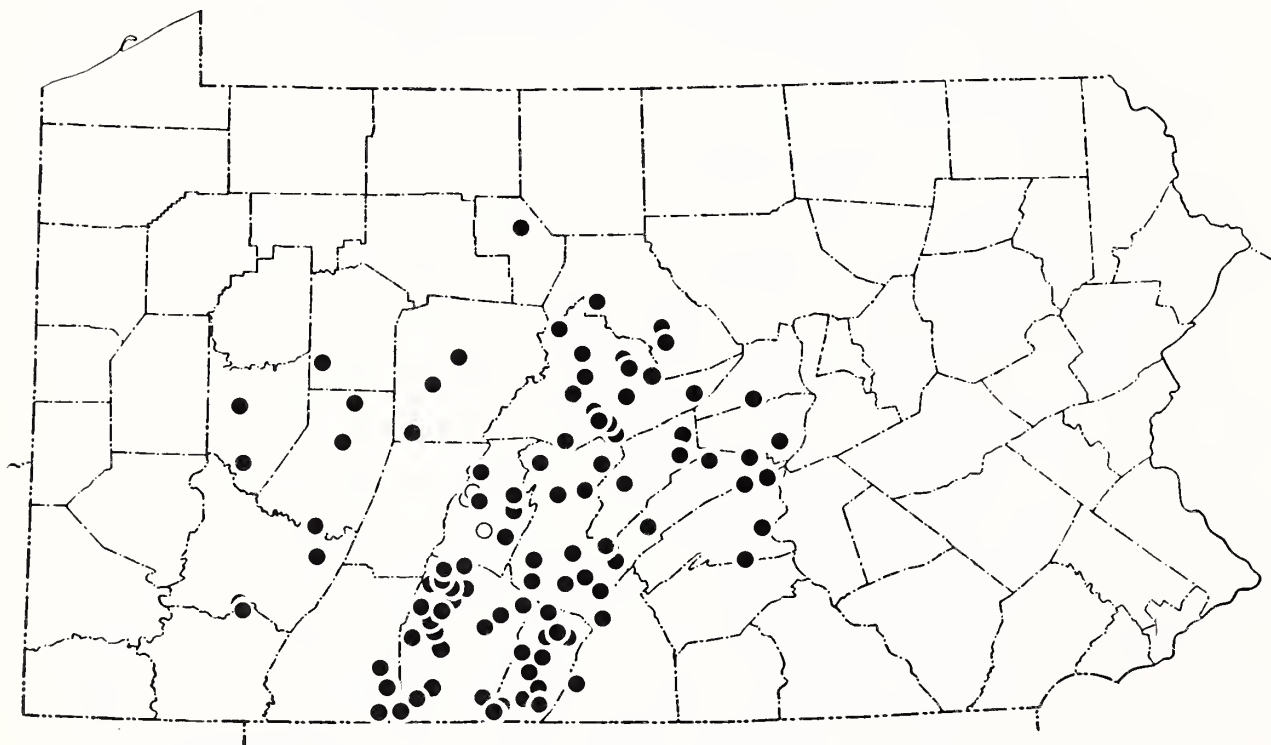
Map 10.—Mountain Dusky Salamander (*Desmognathus ochrophaeus*).



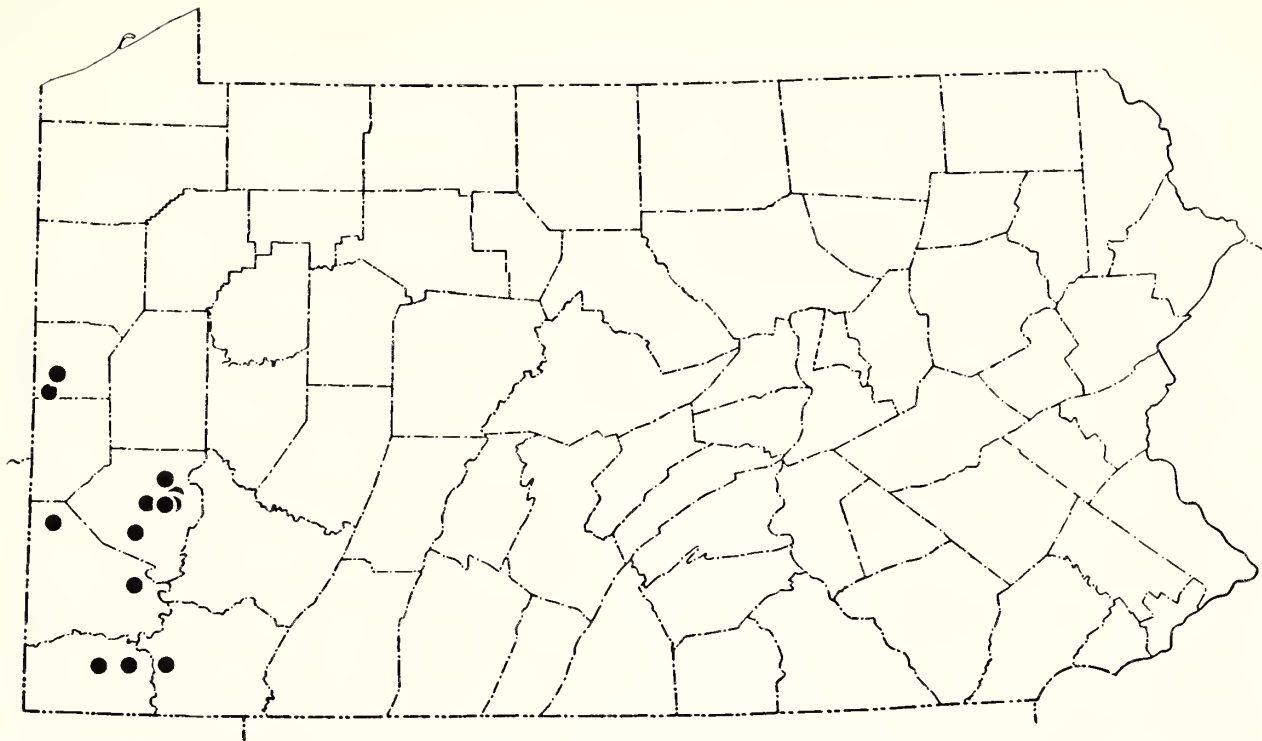
Map 11.—Redbacked Salamander (*Plethodon cinereus*).



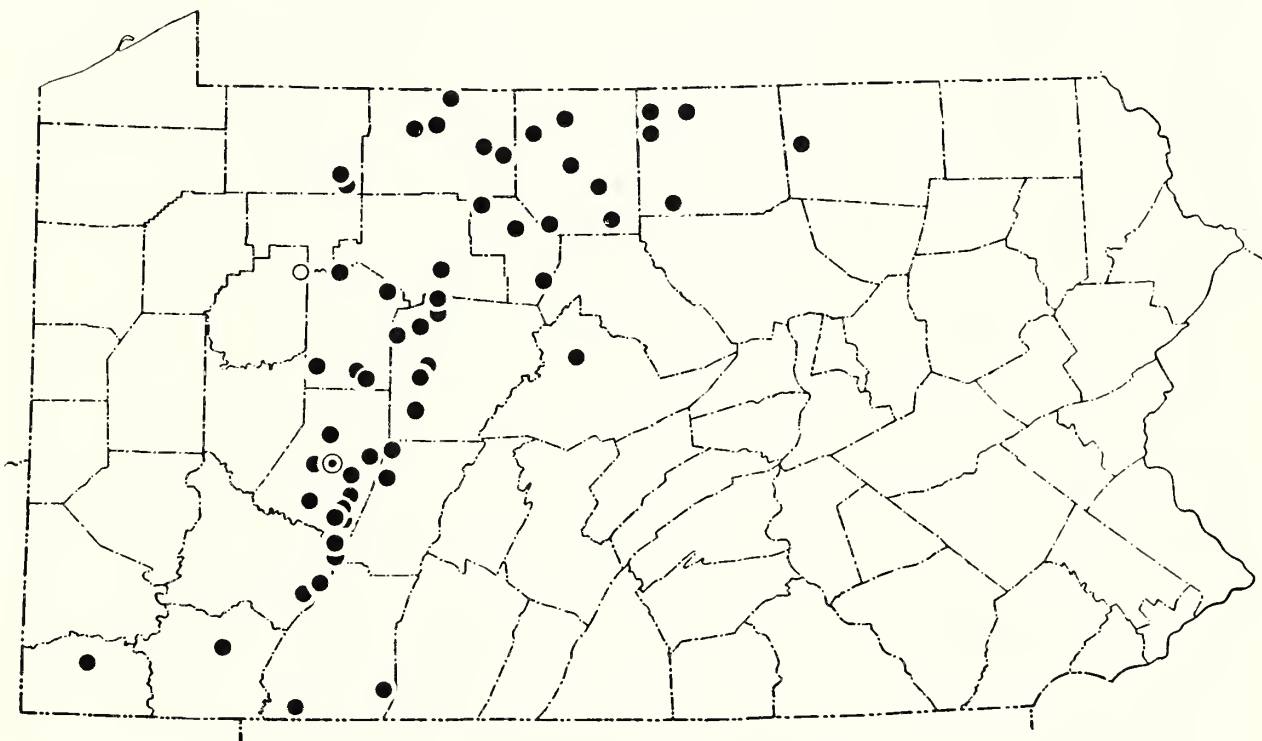
Map 12.—Slimy Salamander (*Plethodon g. glutinosus*).



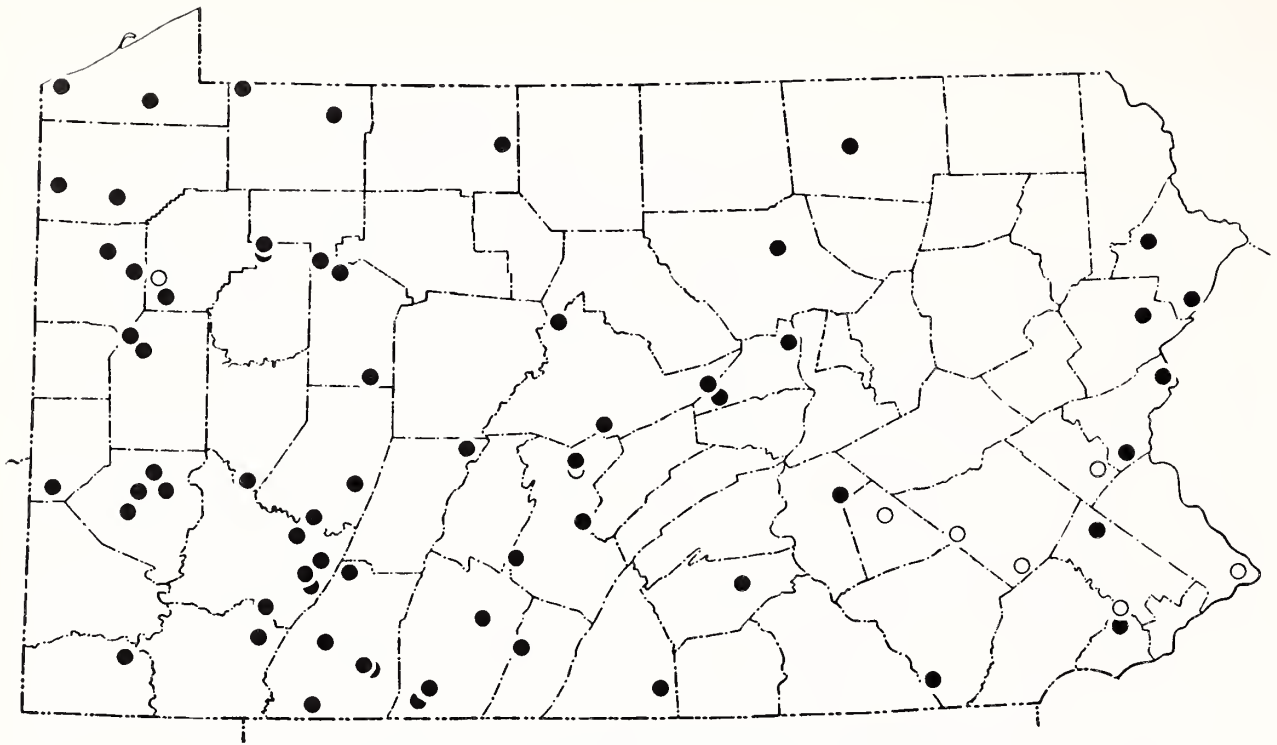
Map 13.—Valley and Ridge Salamander (*Plethodon hoffmani*).



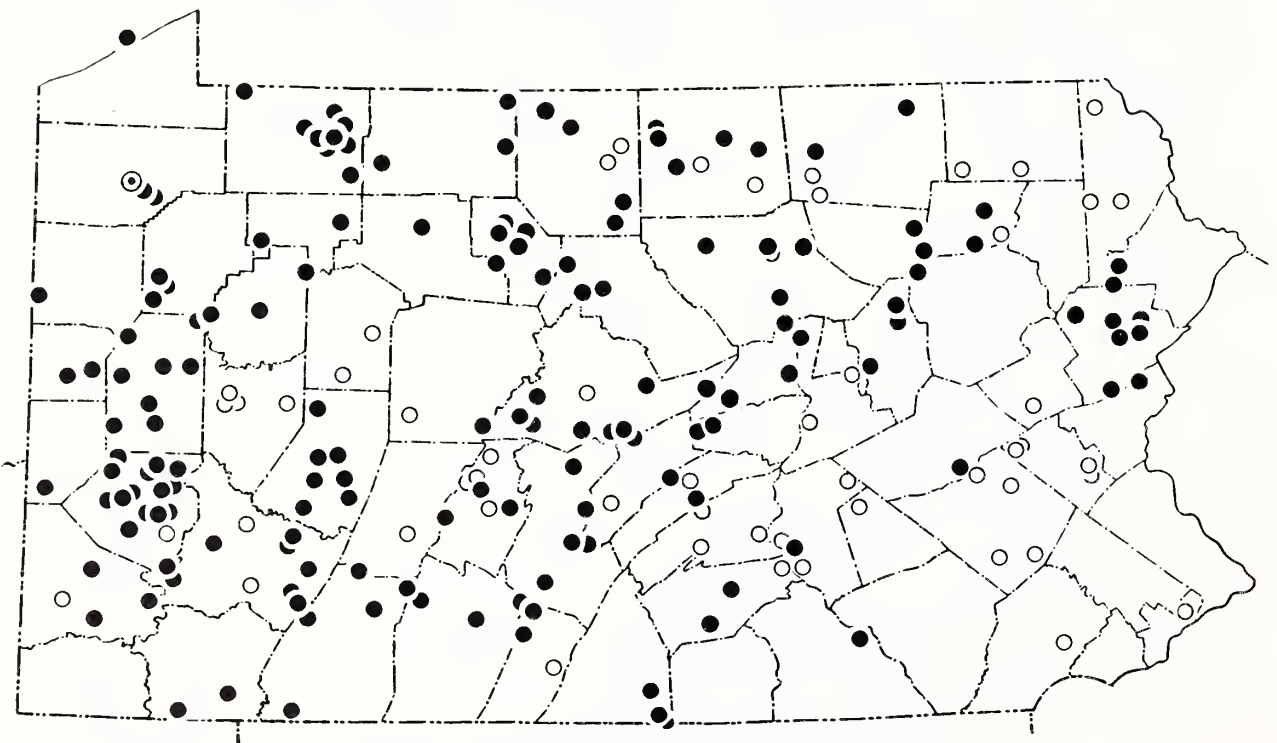
Map 14.—Ravine Salamander (*Plethodon richmondi*).



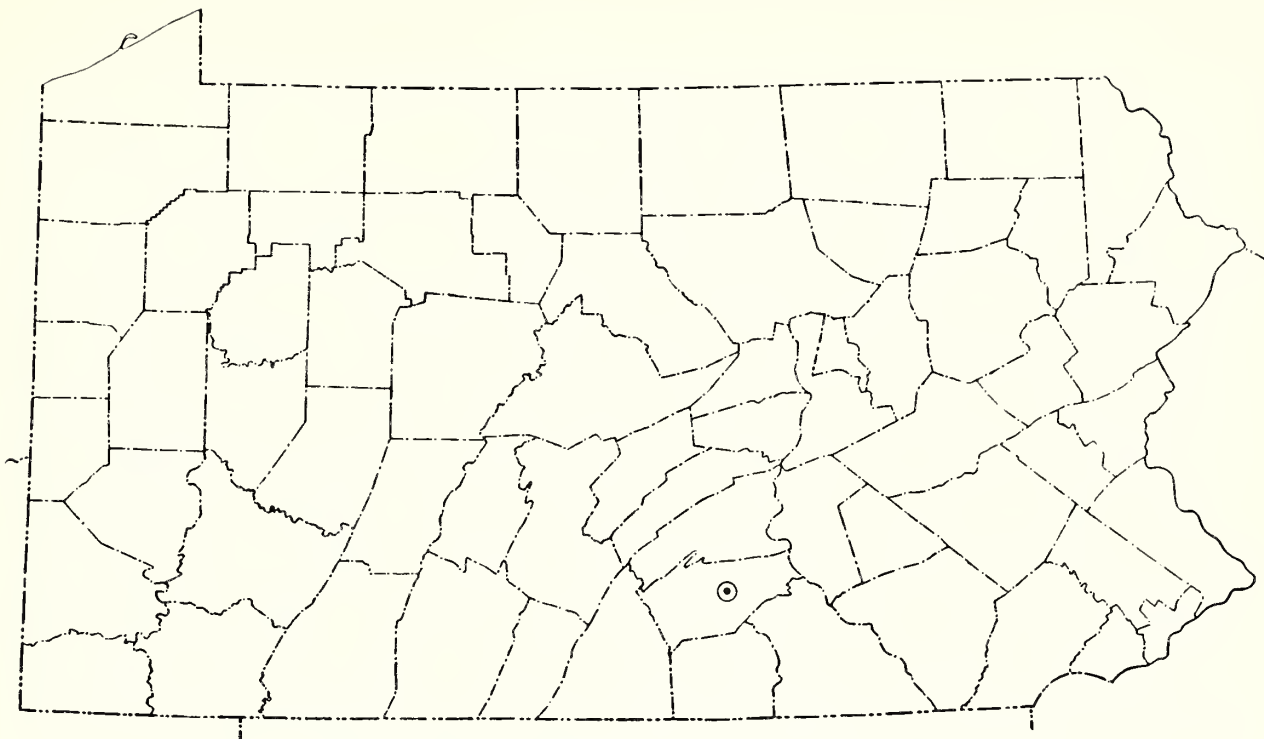
Map 15.—Wehrle's Salamander (*Plethodon wehrlei*).



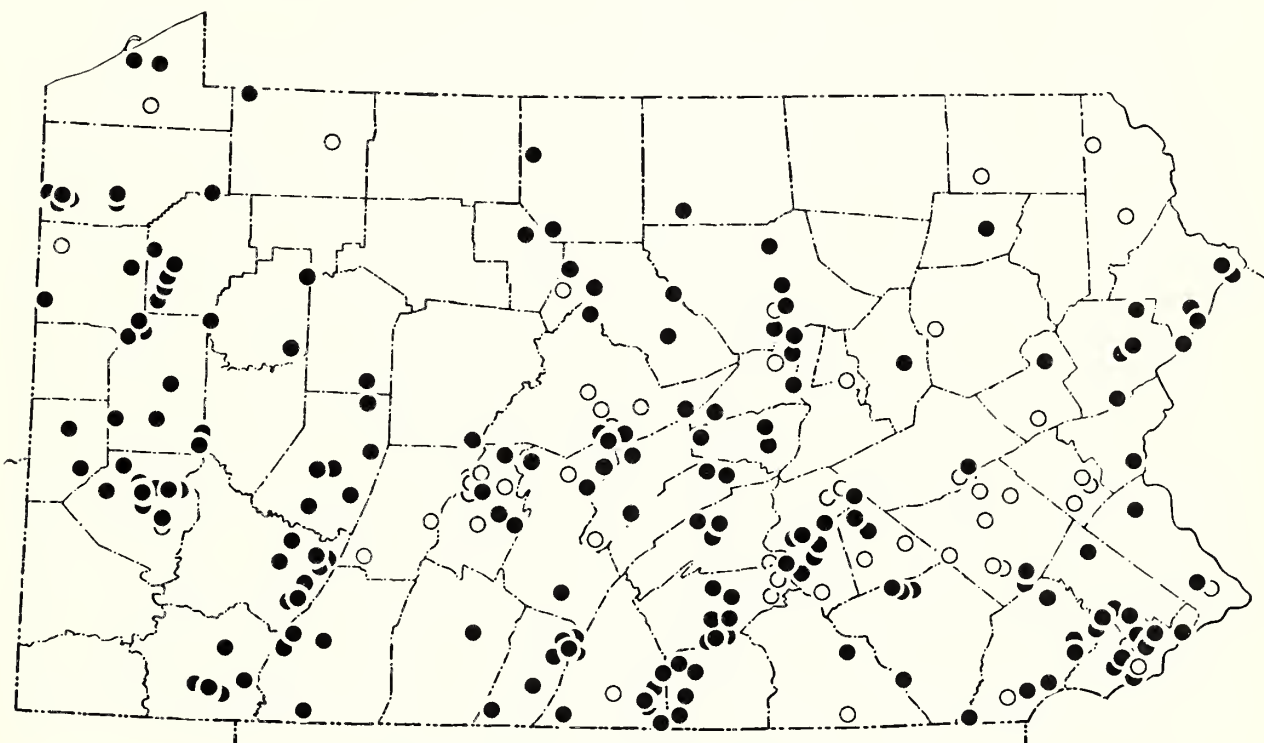
Map 16.—Four-toed Salamander (*Hemidactylium scutatum*).



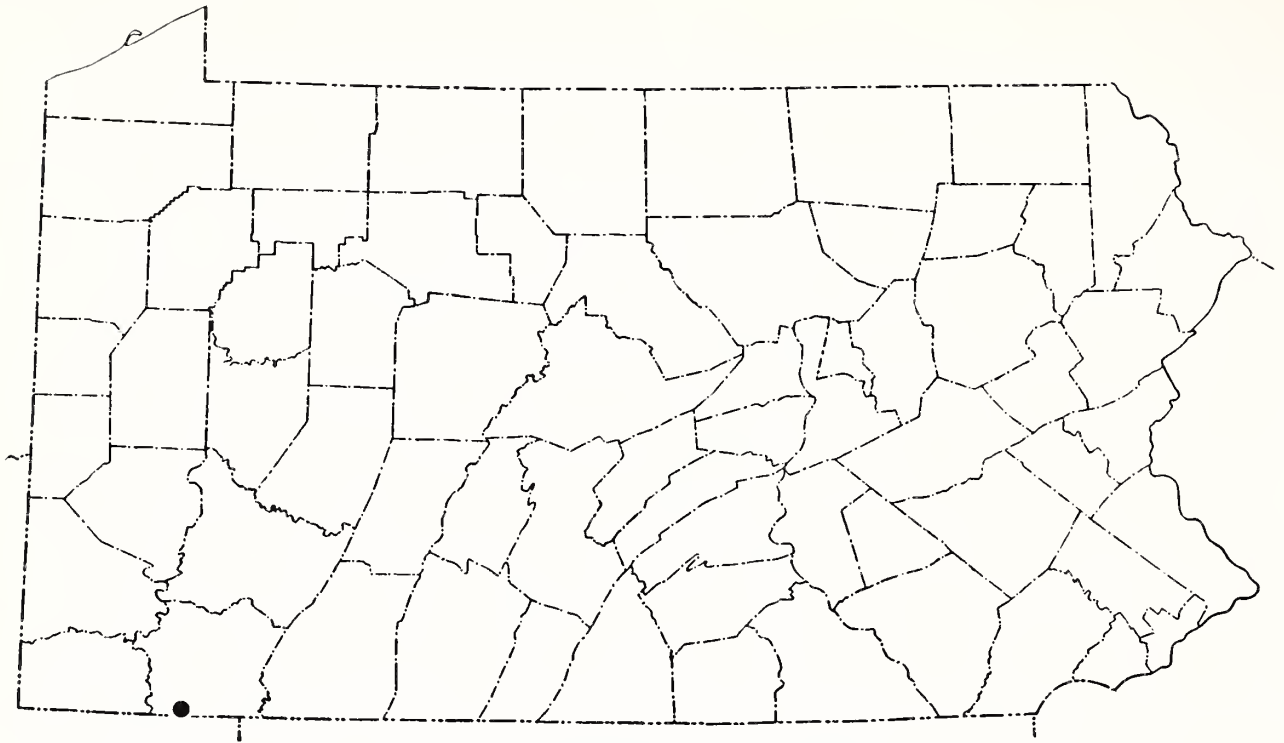
Map 17.—Northern Spring Salamander (*Gyrinophilus p. porphyriticus*).



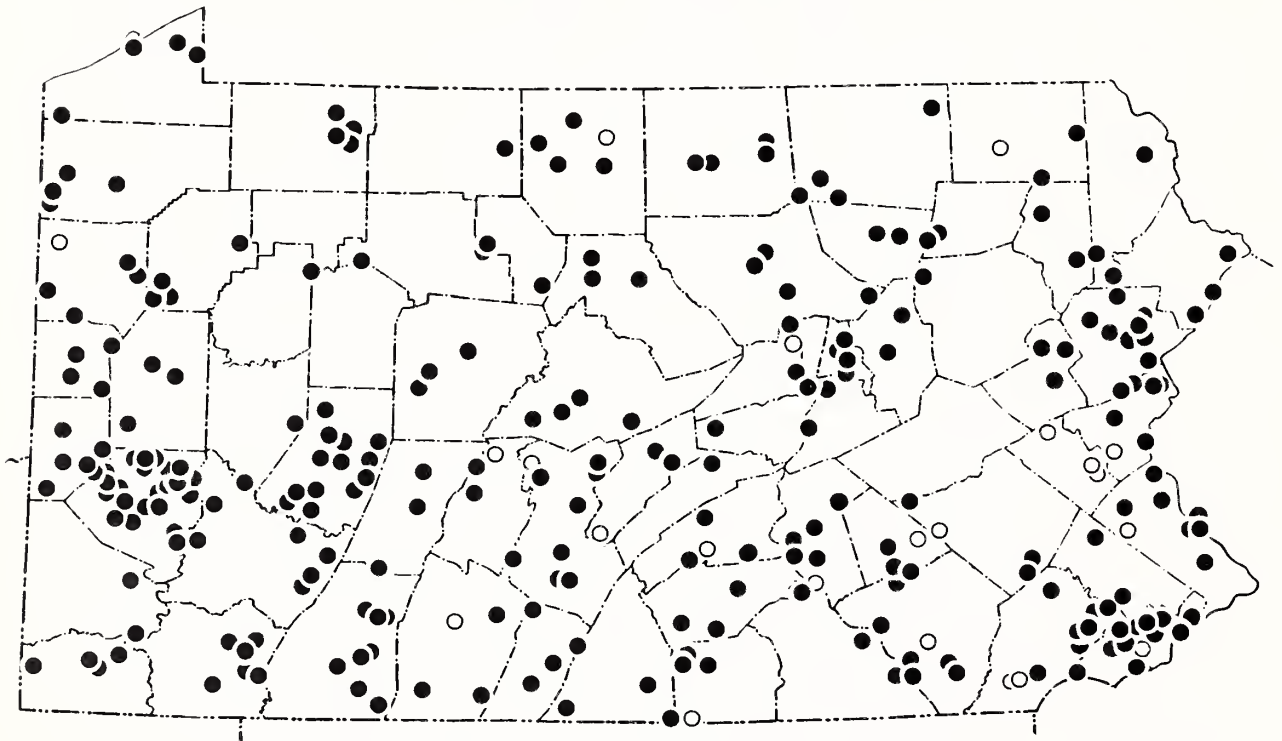
Map 18.—Eastern Mud Salamander (*Pseudotriton m. montanus*).



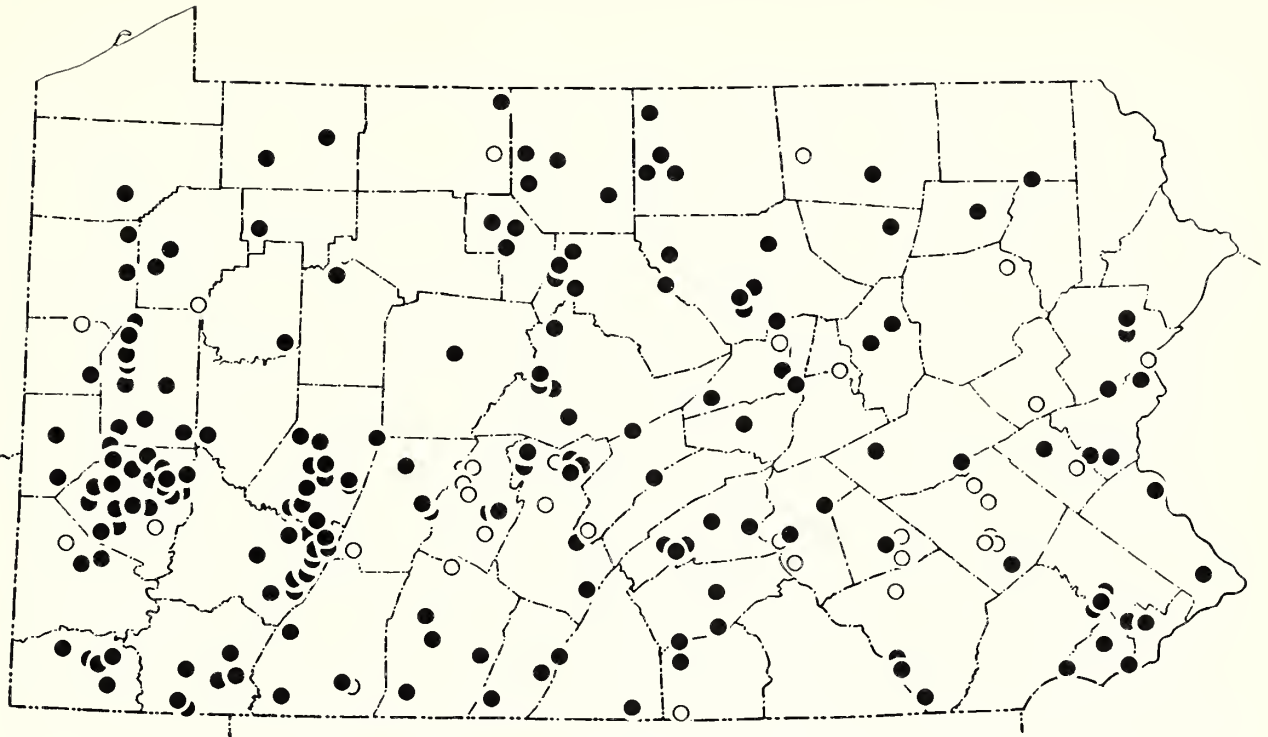
Map 19.—Northern Red Salamander (*Pseudotriton r. ruber*).



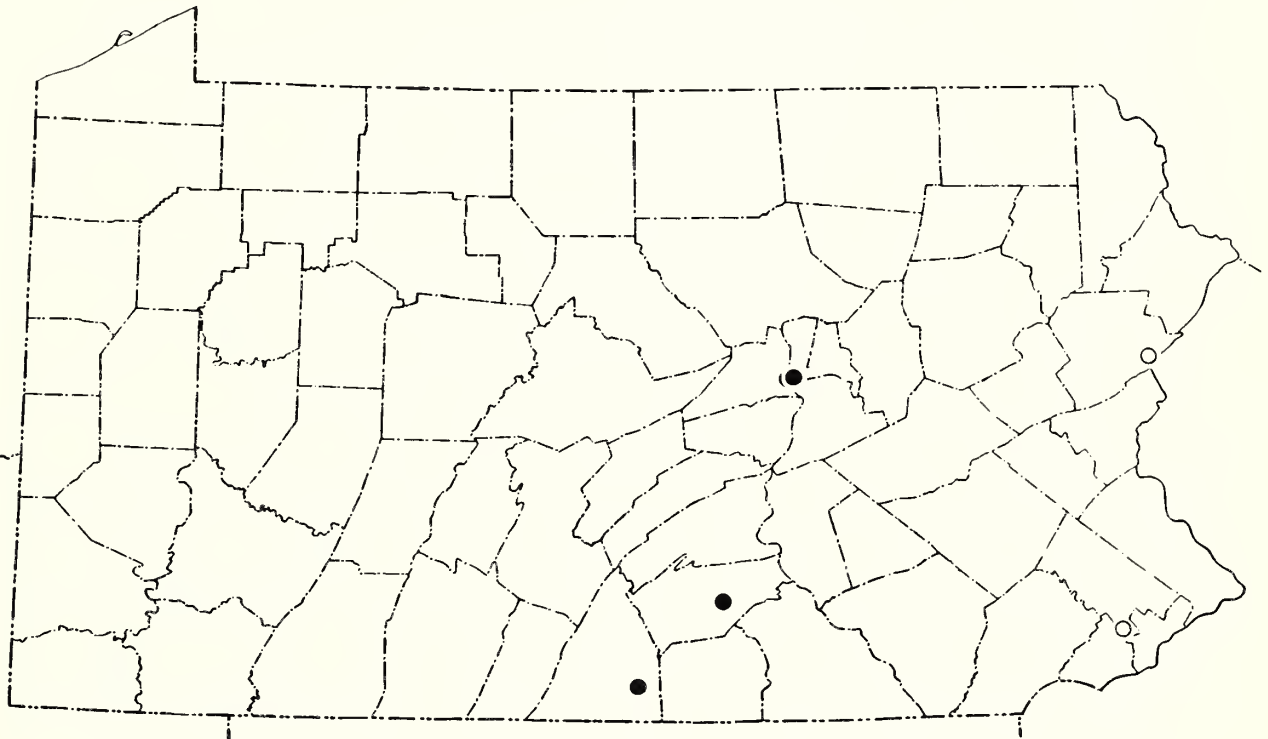
Map 20.—Green Salamander (*Aneides aeneus*).



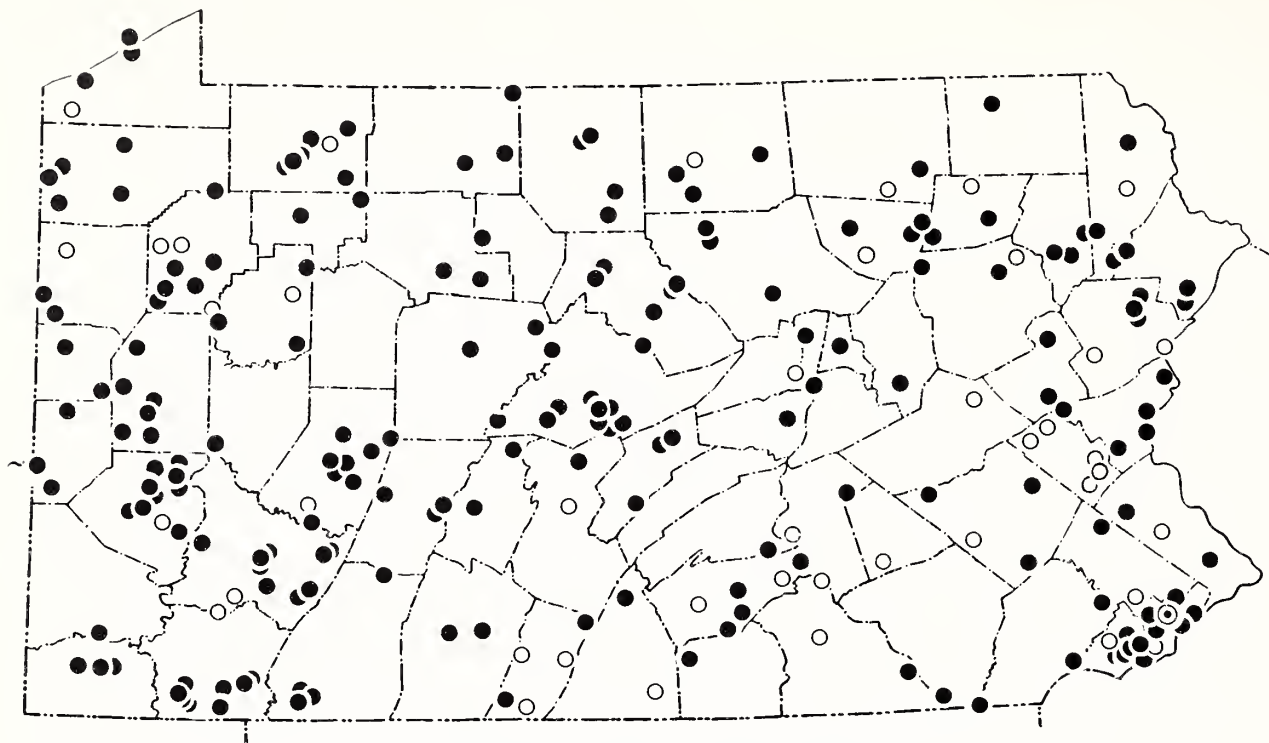
Map 21.—Northern Two-lined Salamander (*Eurycea b. bislineata*).



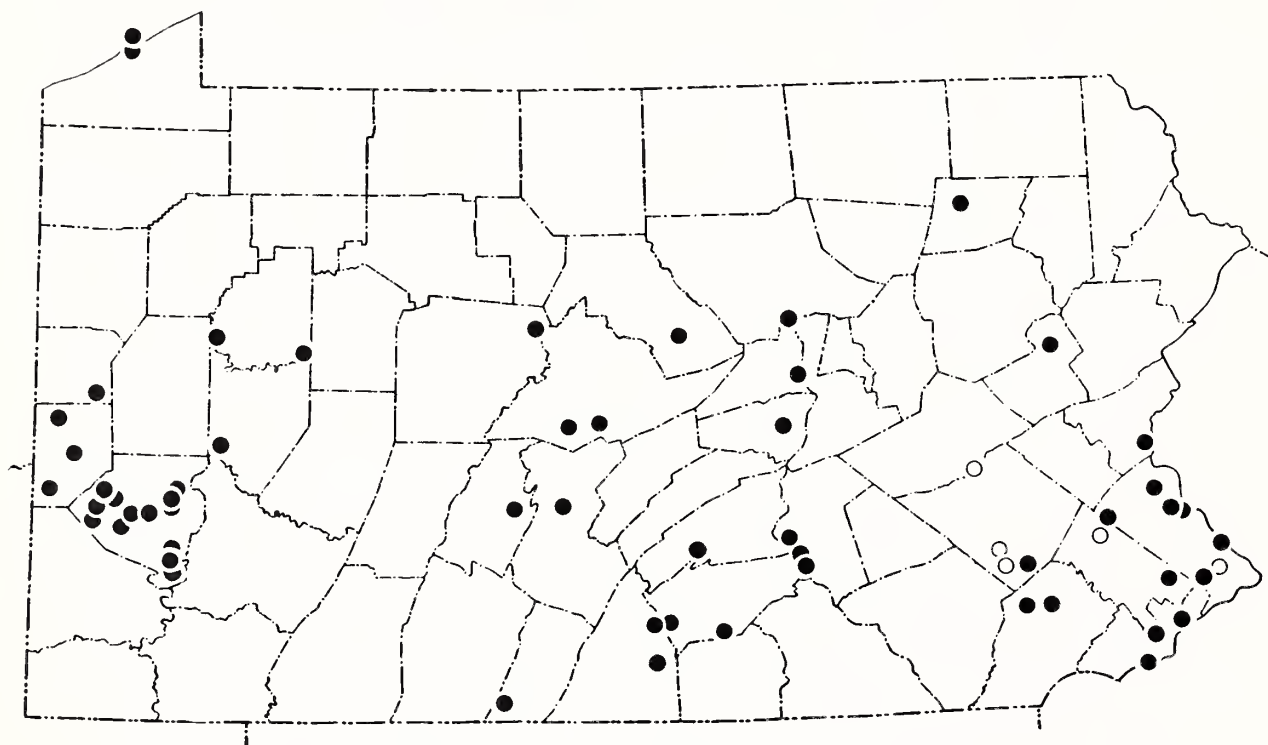
Map 22.—Long-tailed Salamander (*Eurycea l. longicauda*).



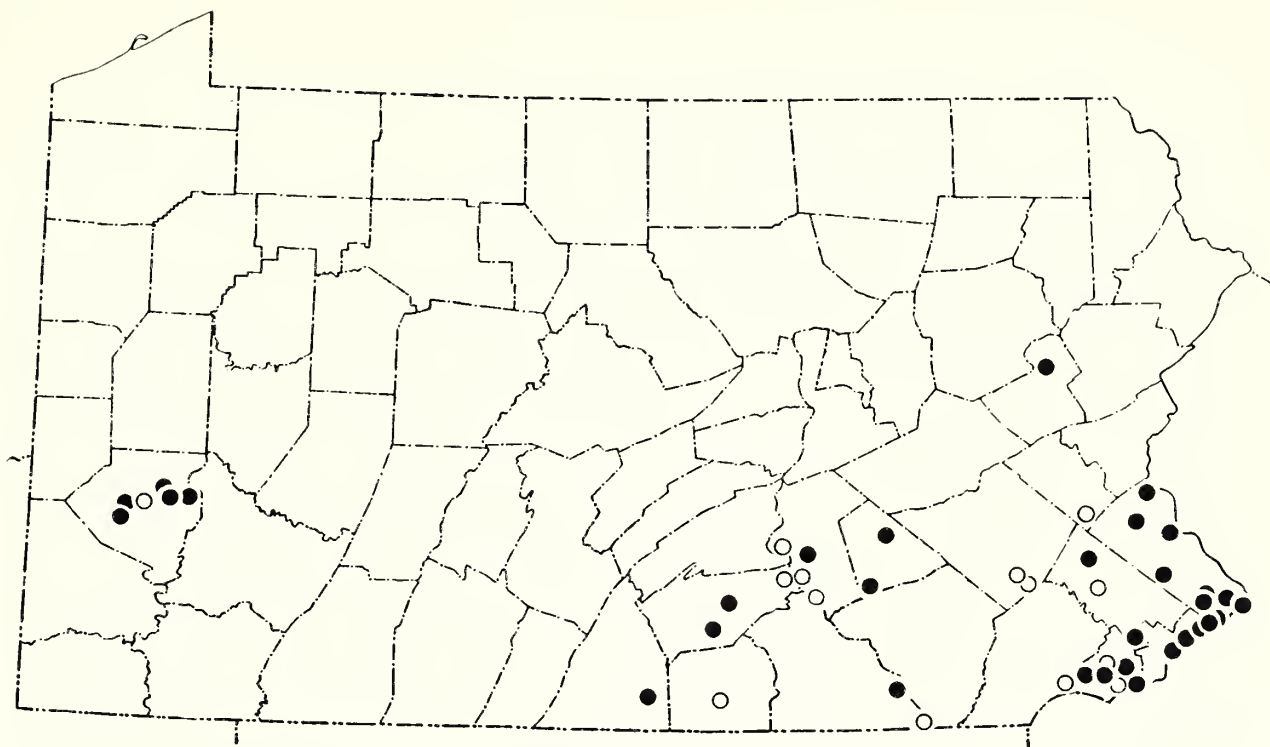
Map 23.—Eastern Spadefoot (*Scaphiopus h. holbrooki*).



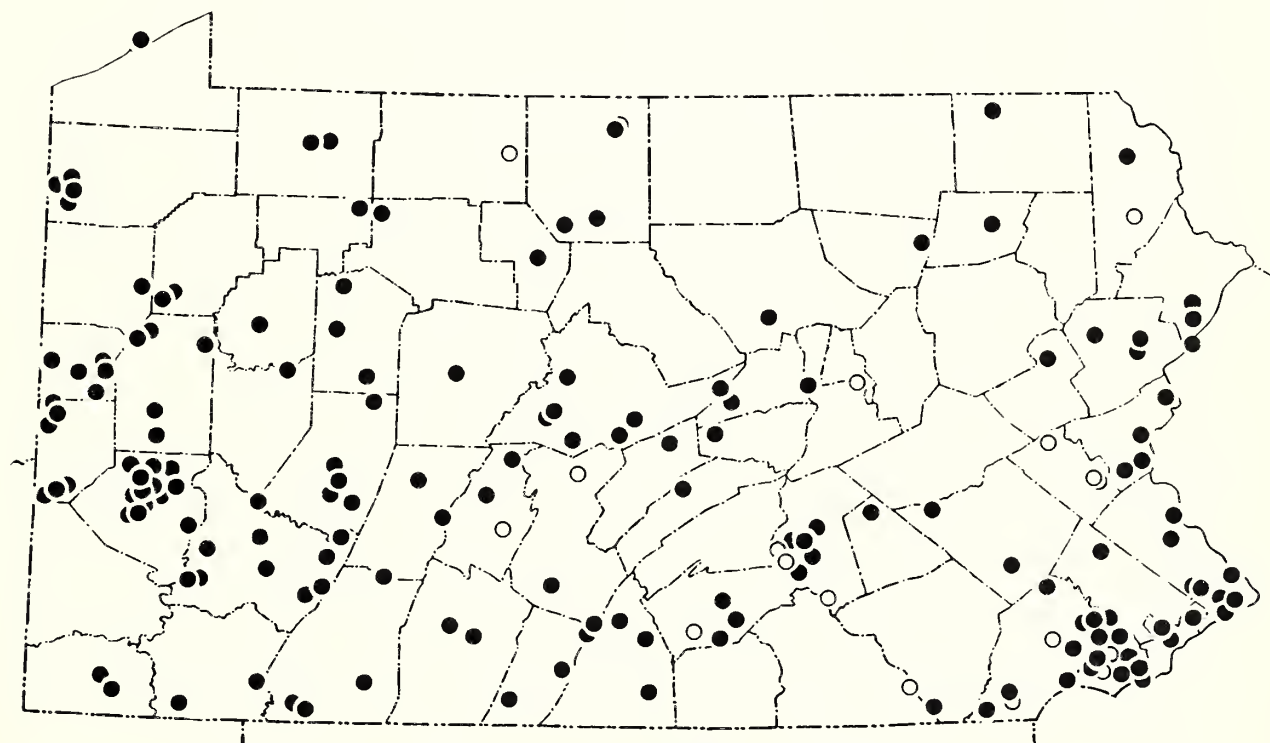
Map 24.—Eastern American Toad (*Bufo a. americanus*).



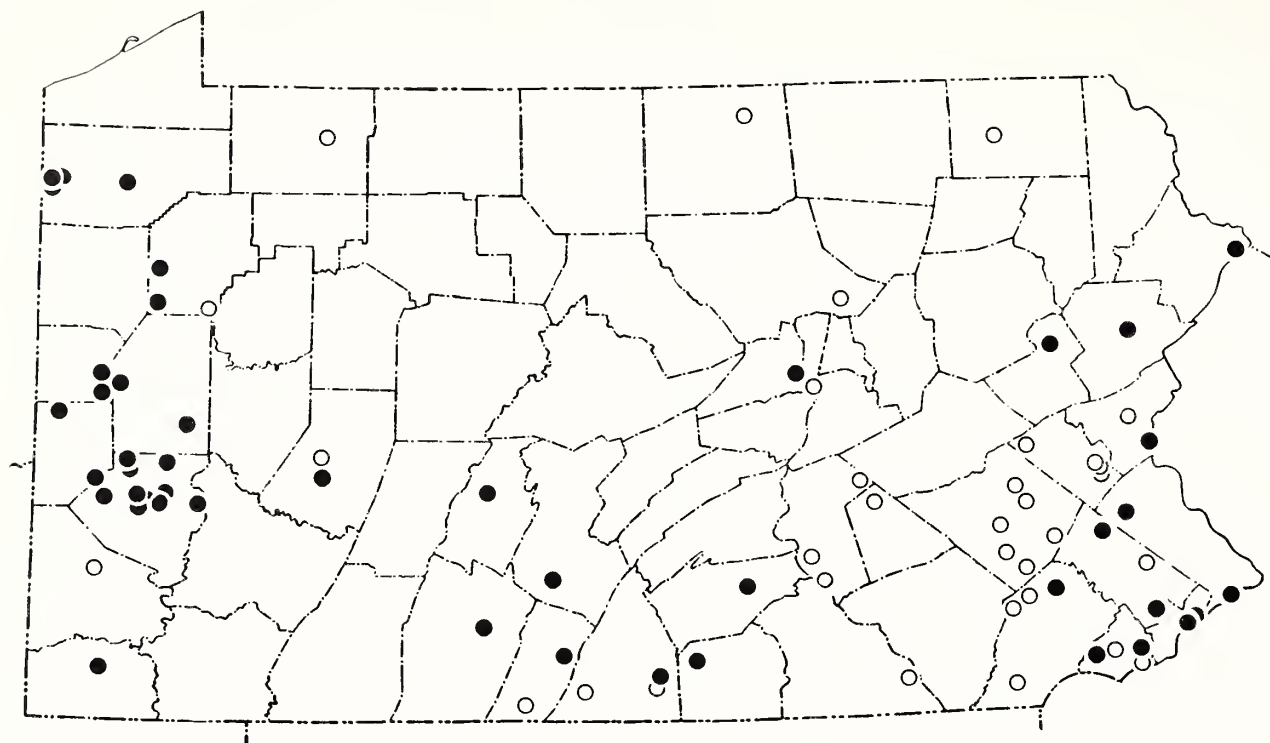
Map 25.—Fowler's Toad (*Bufo woodhousei fowleri*).



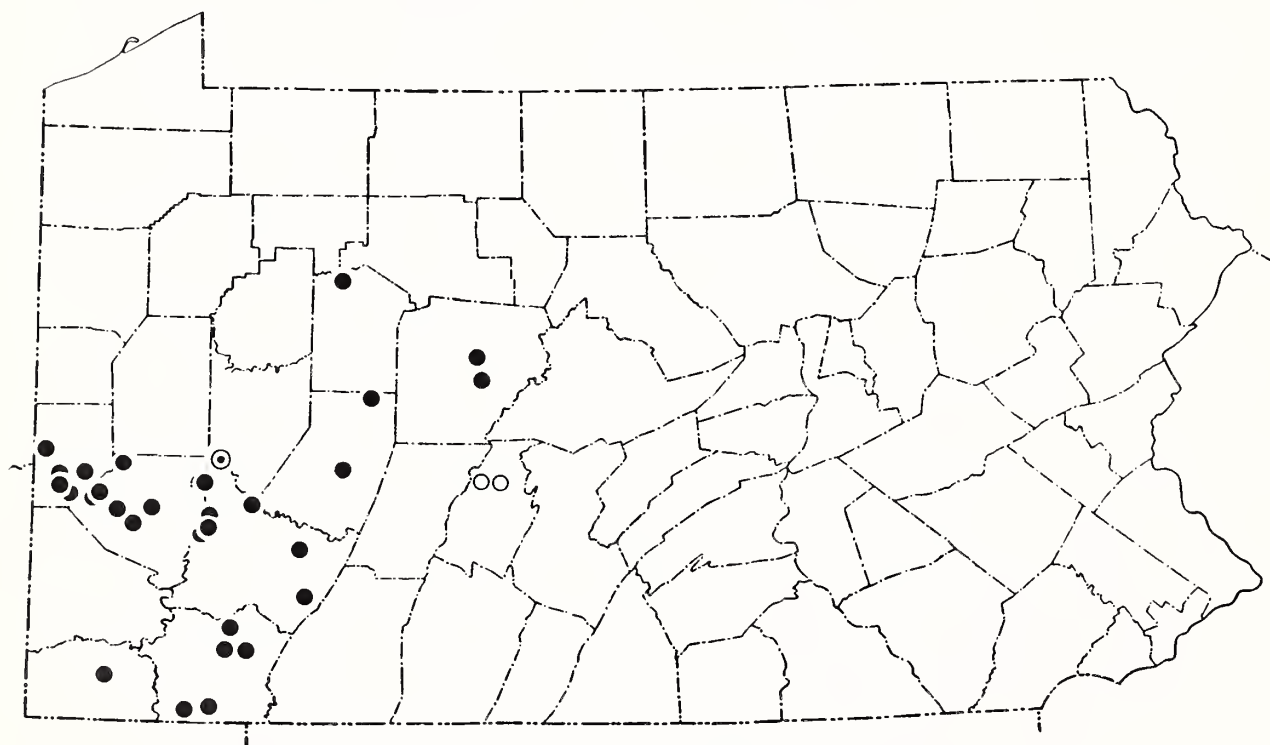
Map 26.—Northern Cricket Frog (*Acris c. crepitans*).



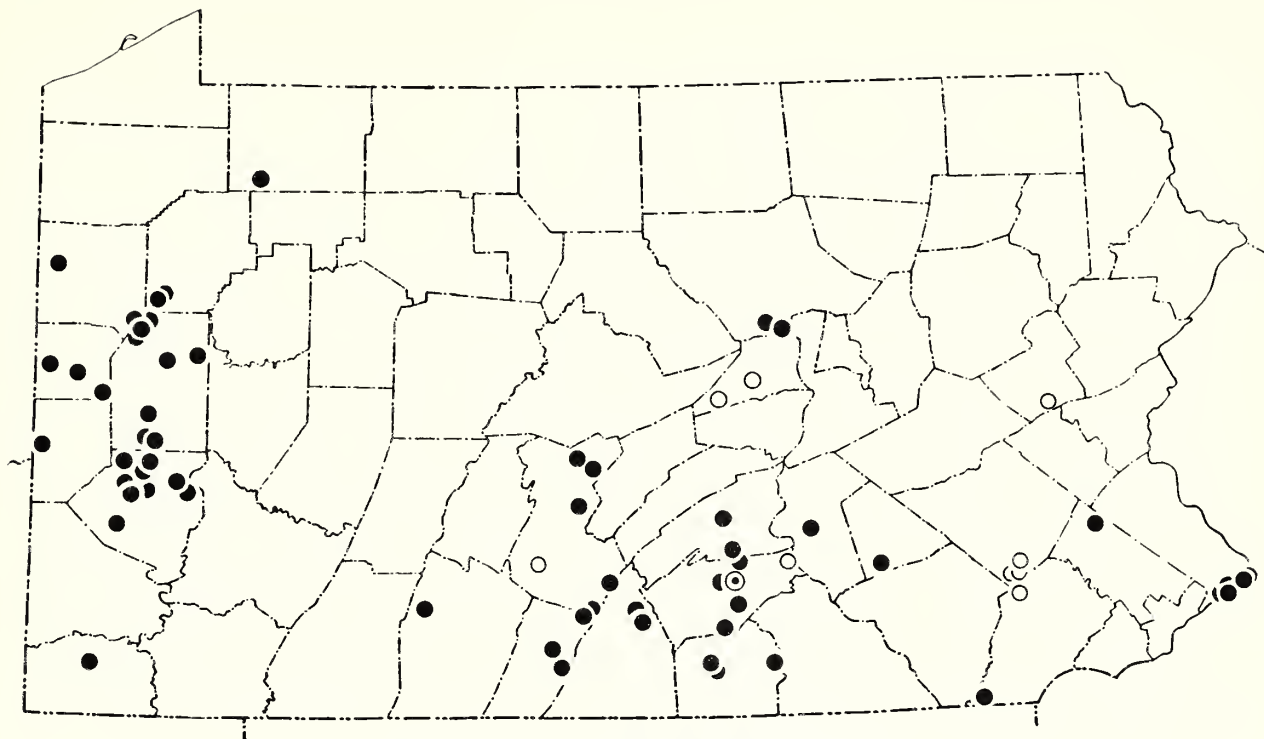
Map 27.—Northern Spring Peeper (*Hyla c. crucifer*).



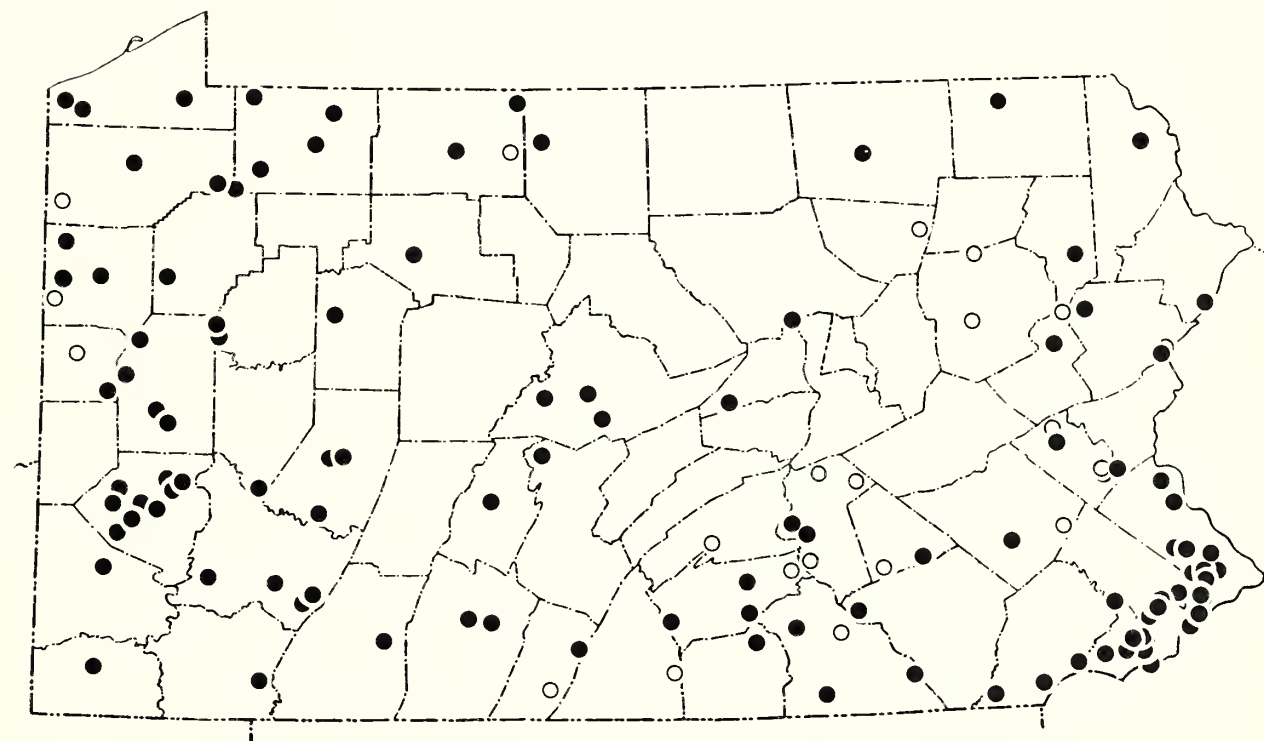
Map 28.—Gray Treefrog (*Hyla versicolor*).



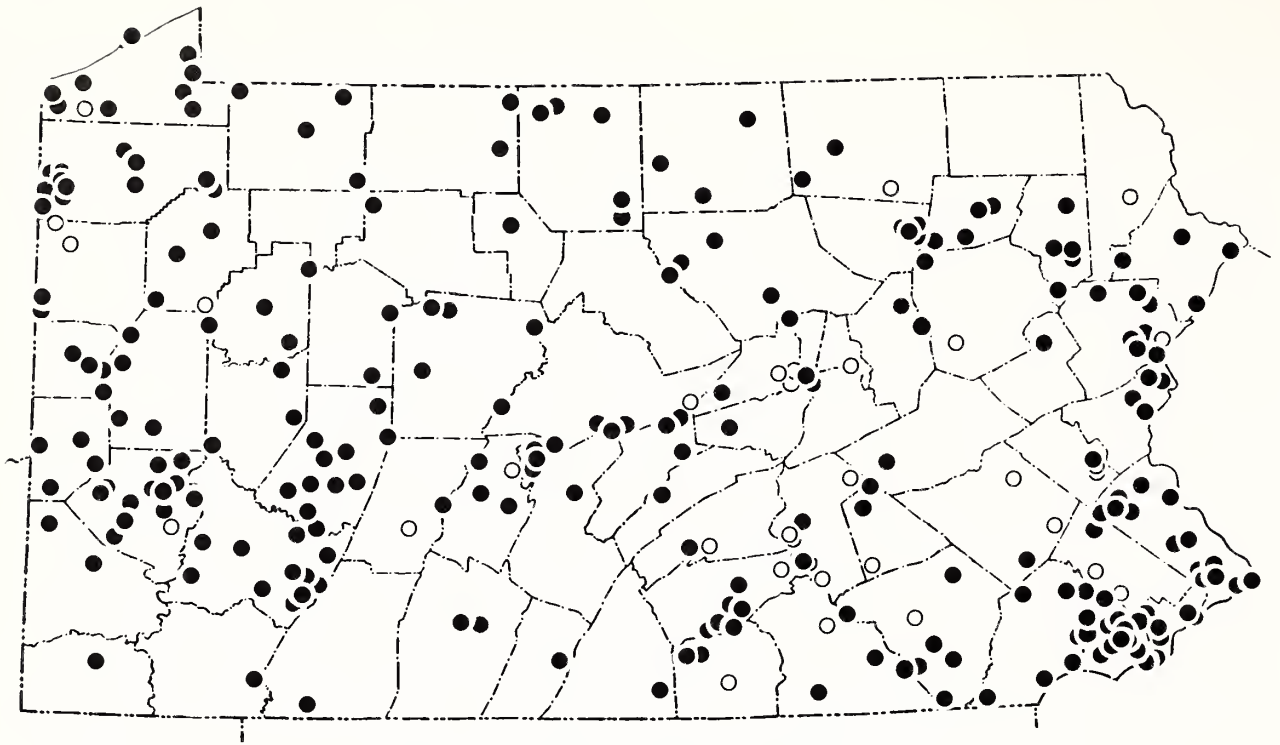
Map 29.—Mountain Chorus Frog (*Pseudacris brachyphona*).



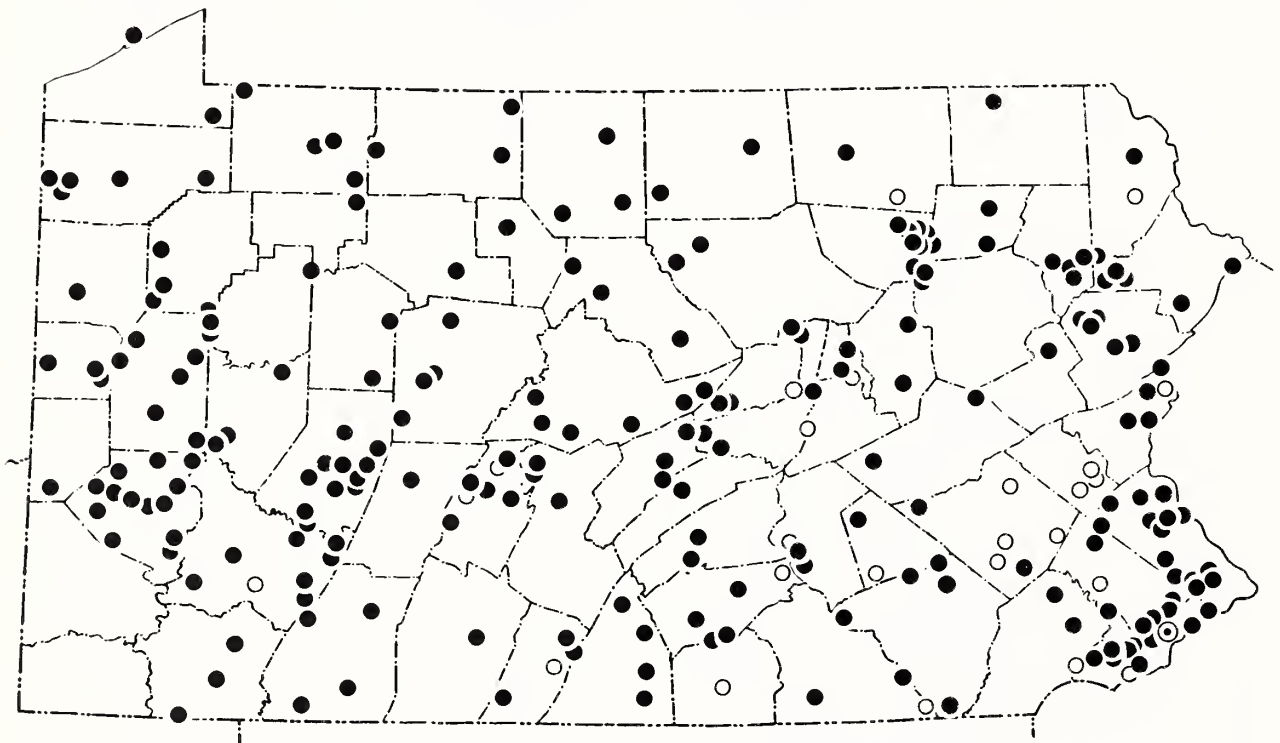
Map 30.—Striped Chorus Frog (*Pseudacris triseriata*).



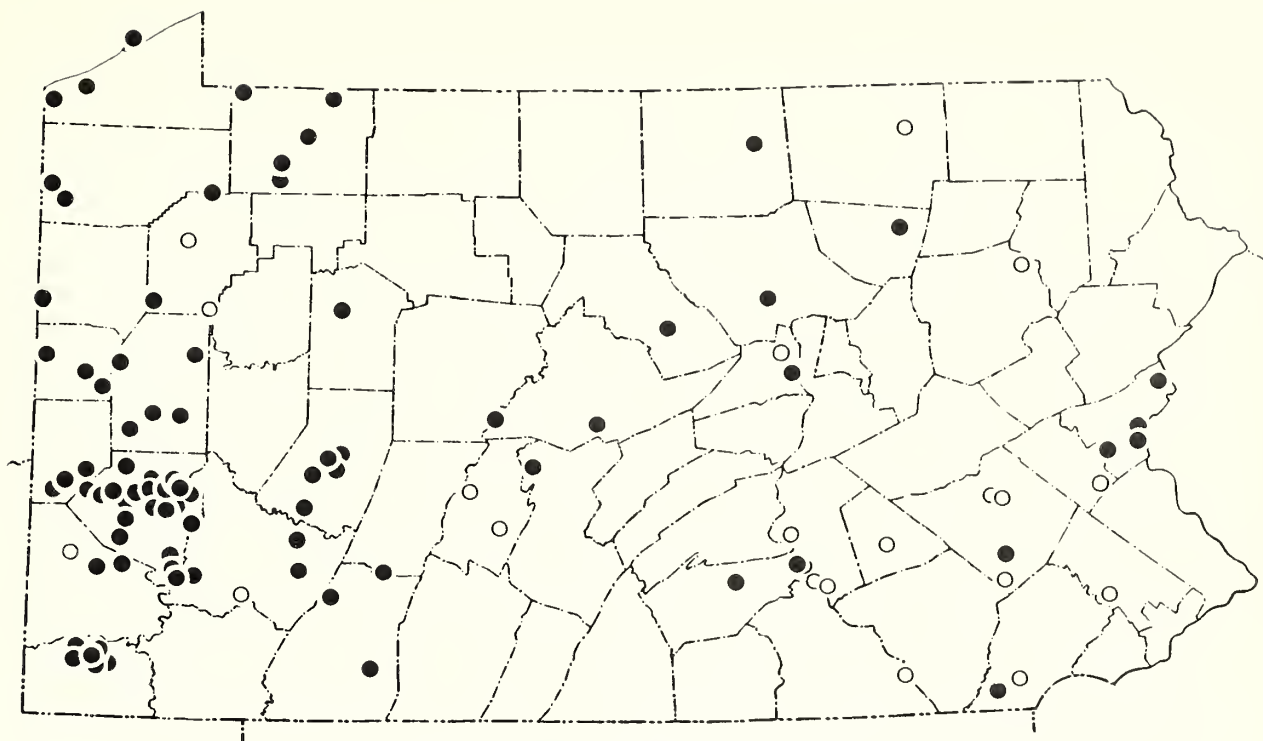
Map 31.—Bullfrog (*Rana catesbeiana*).



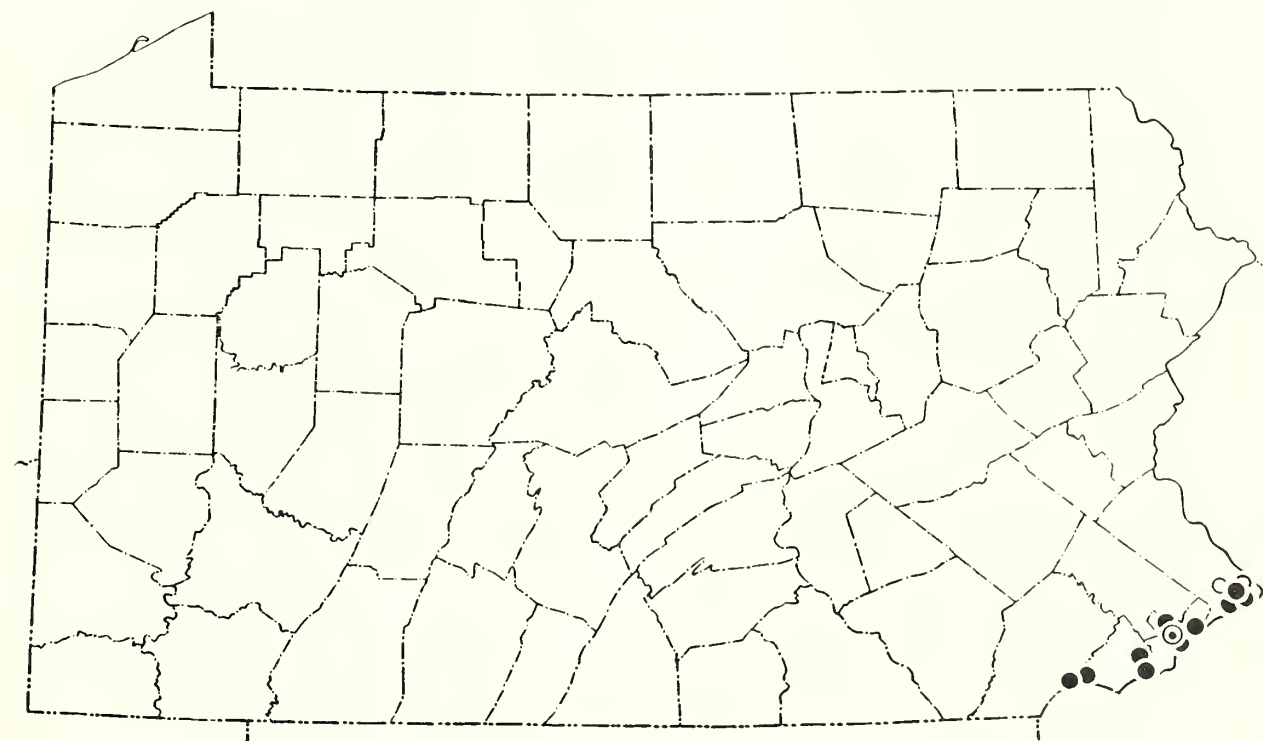
Map 32.—Green Frog (*Rana clamitans melanota*).



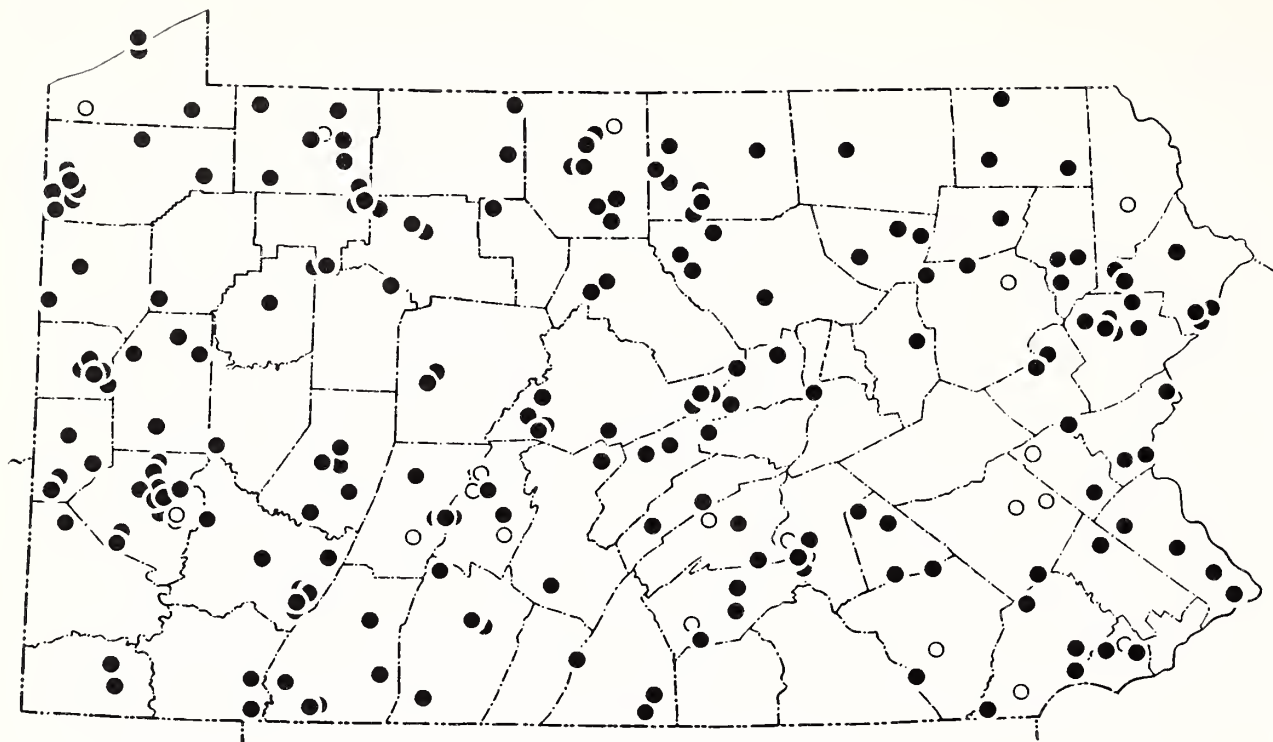
Map 33.—Pickerel Frog (*Rana palustris*).



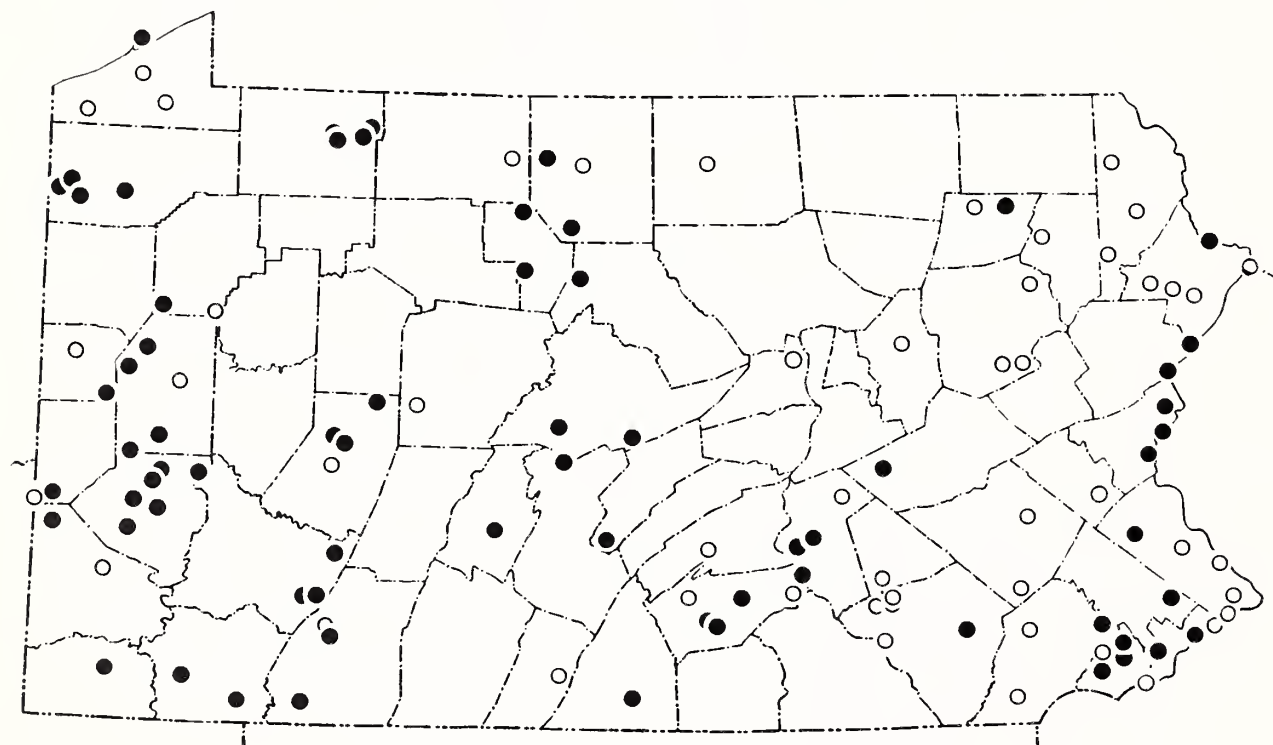
Map 34.—Northern Leopard Frog (*Rana pipiens*).



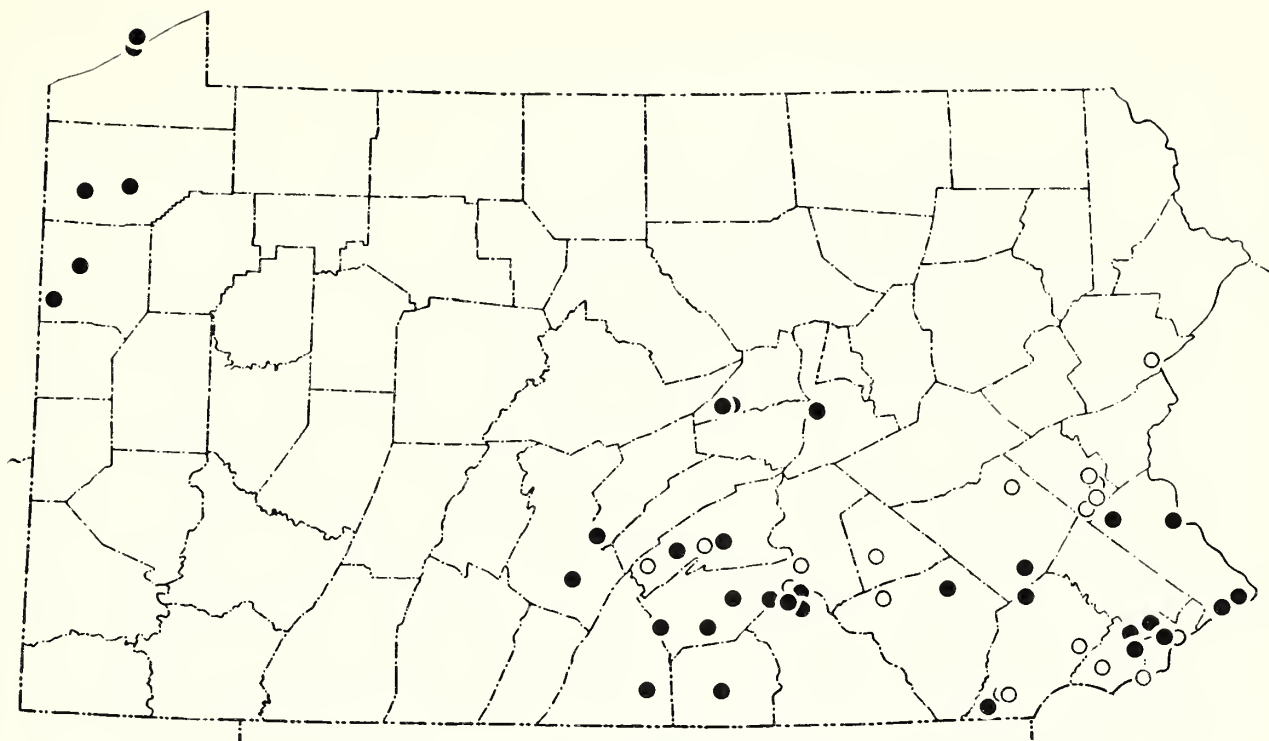
Map 35.—Southern Leopard Frog (*Rana u. utricularia*).



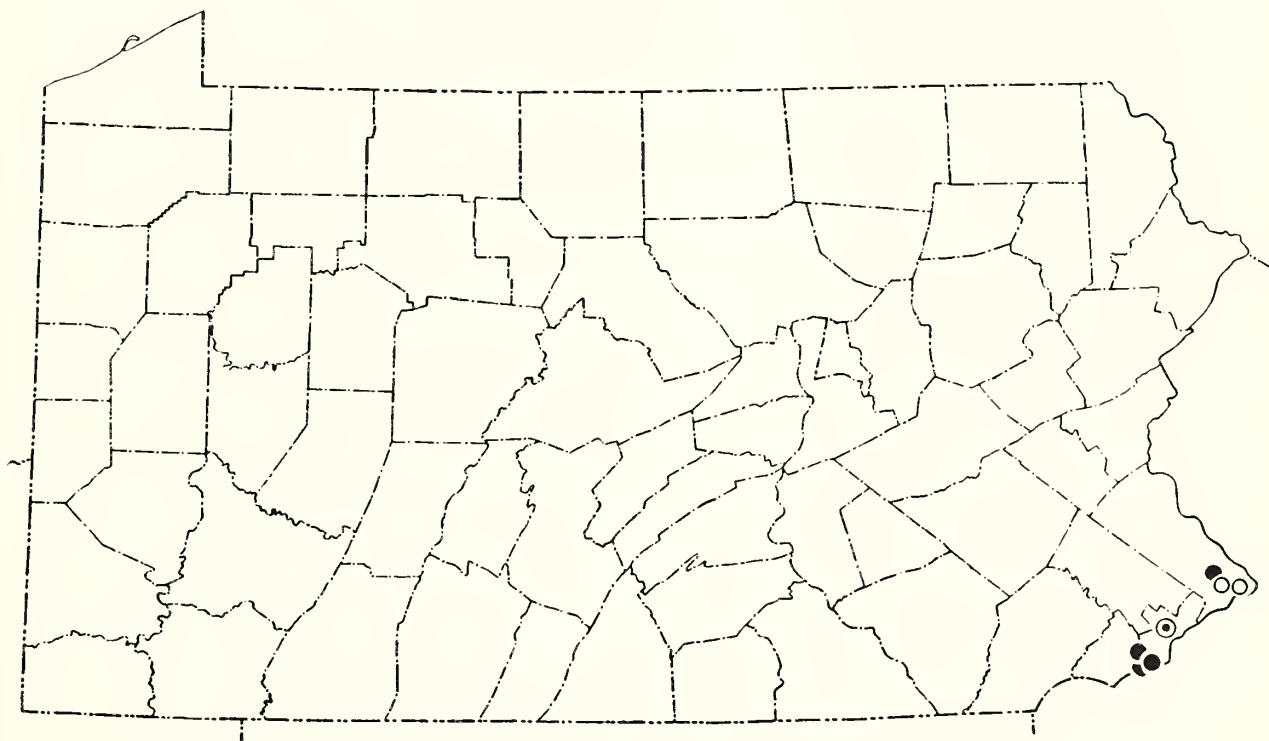
Map 36.—Wood Frog (*Rana sylvatica*).



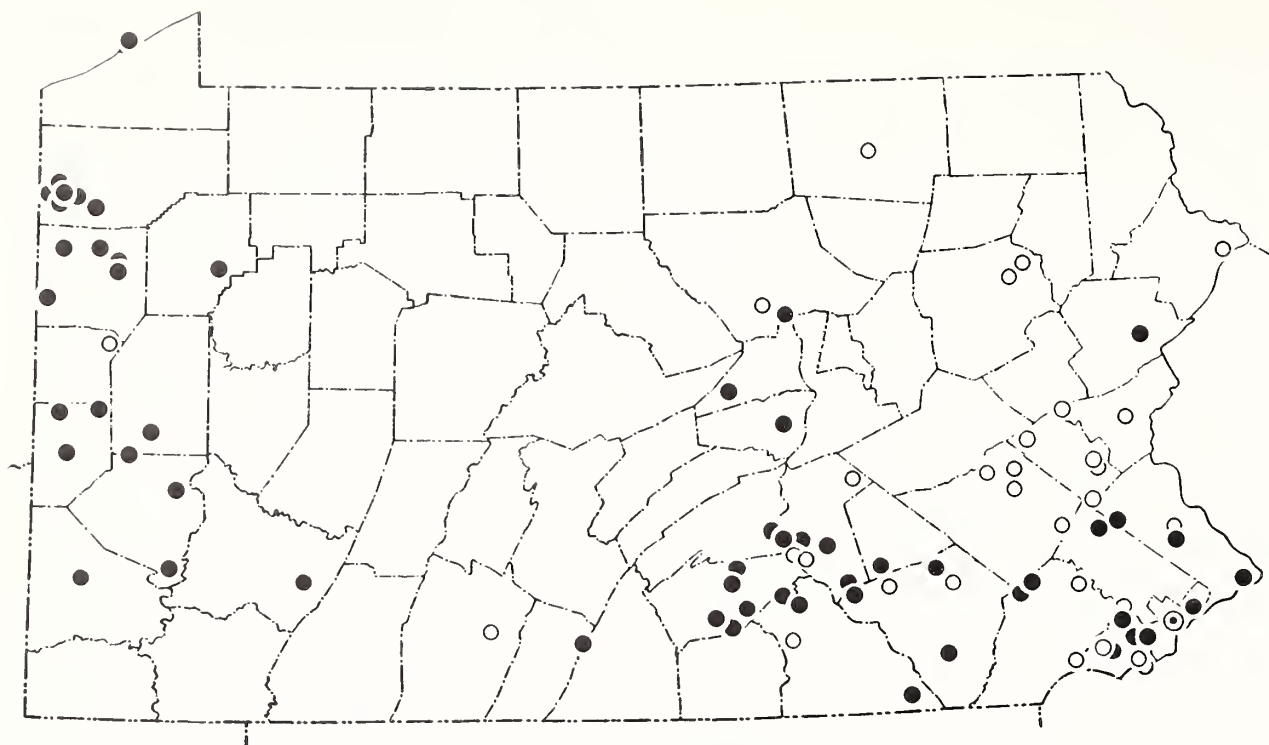
Map 37.—Common Snapping Turtle (*Chelydra s. serpentina*).



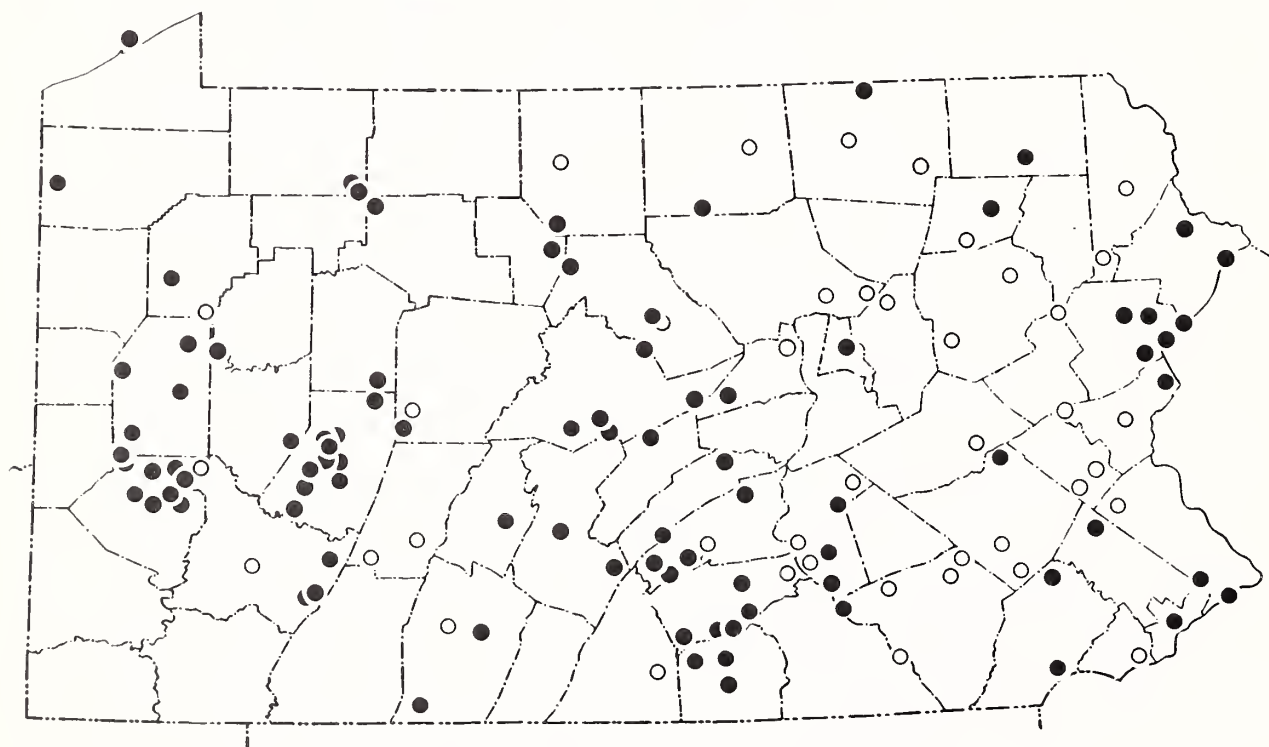
Map 38.—Stinkpot (*Sternotherus odoratus*).



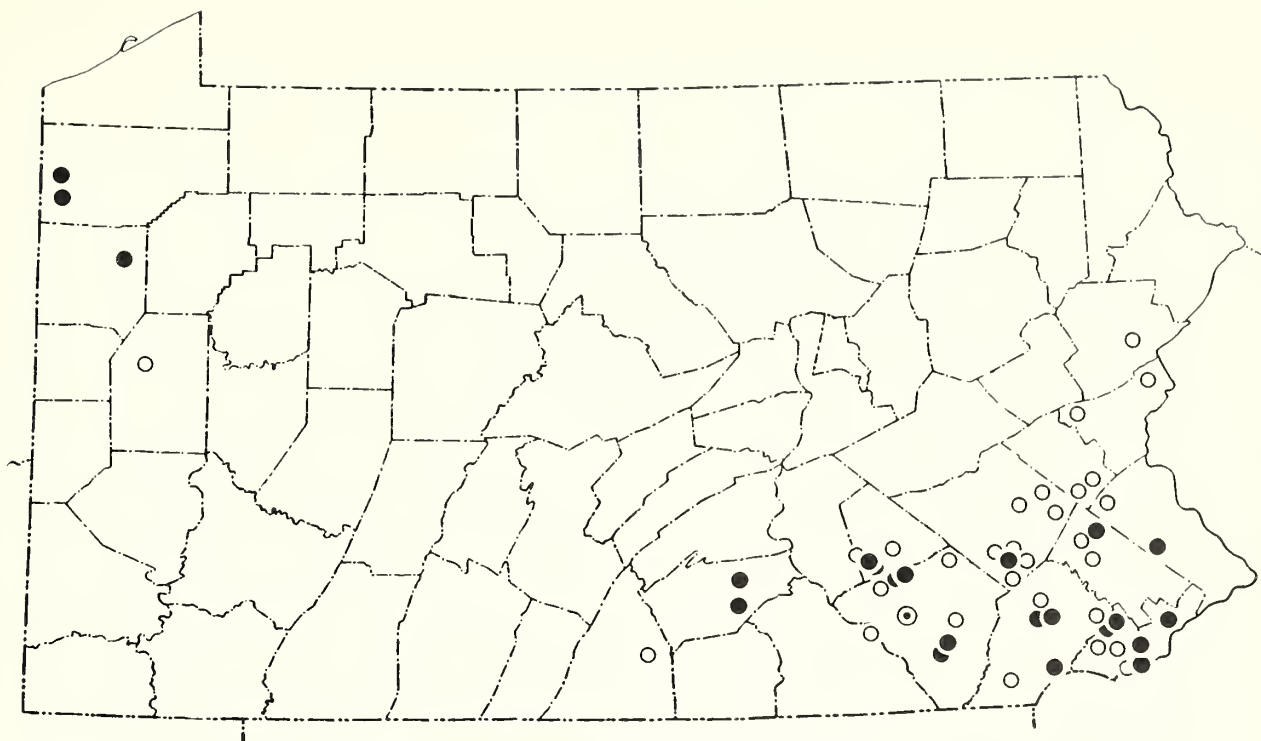
Map 39.—Eastern Mud Turtle (*Kinosternon s. subrubrum*).



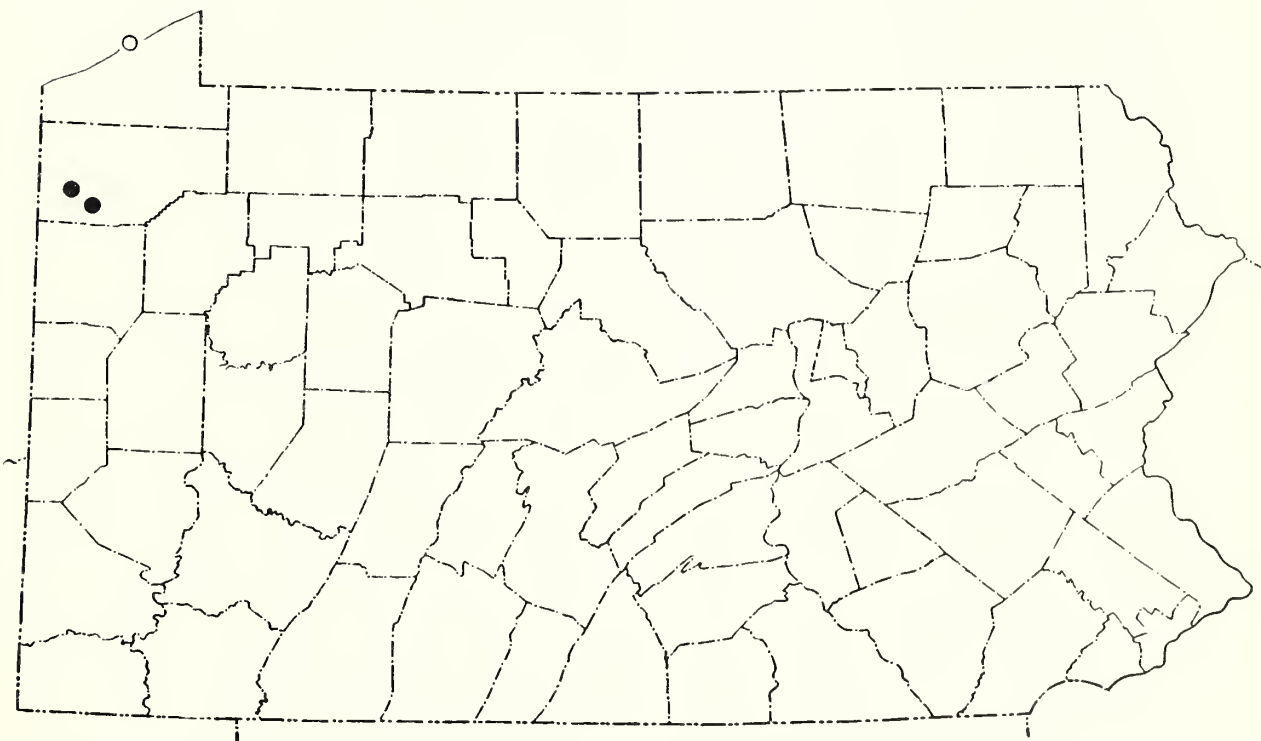
Map 40.—Spotted Turtle (*Clemmys guttata*).



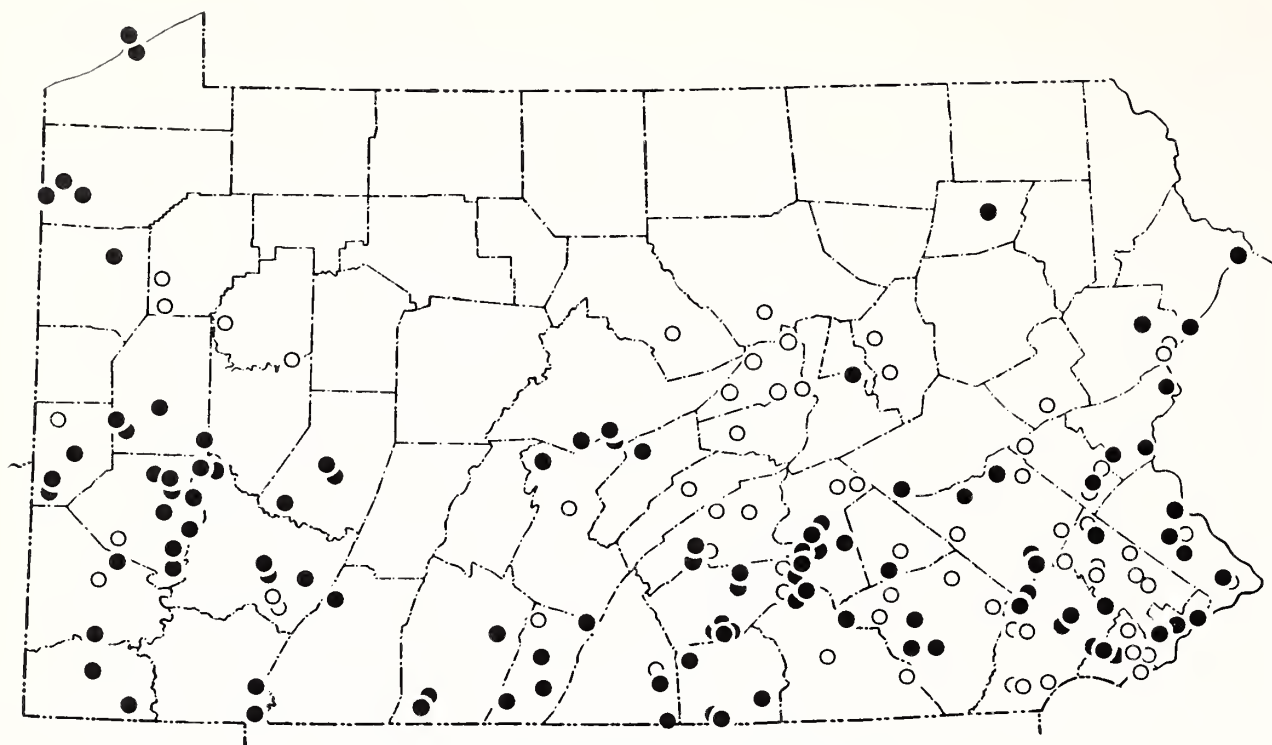
Map 41.—Wood Turtle (*Clemmys insculpta*).



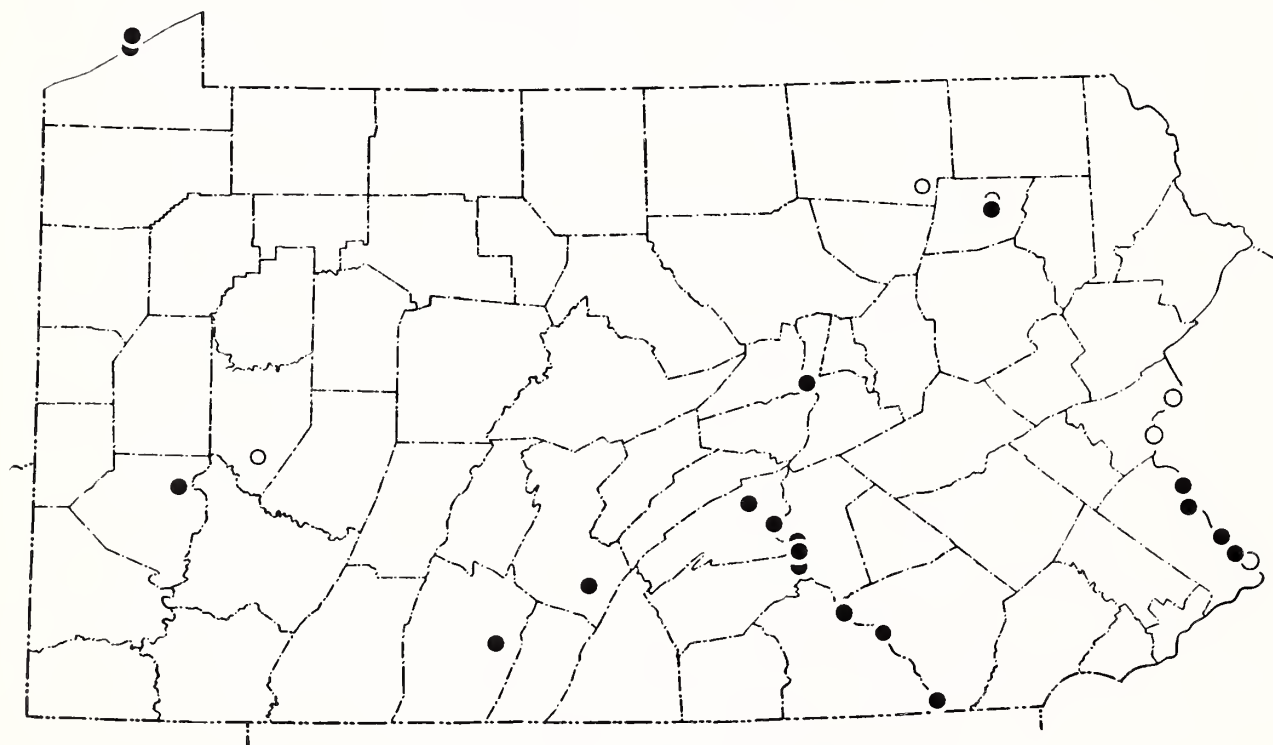
Map 42.—Bog Turtle (*Clemmys mühlenbergi*).



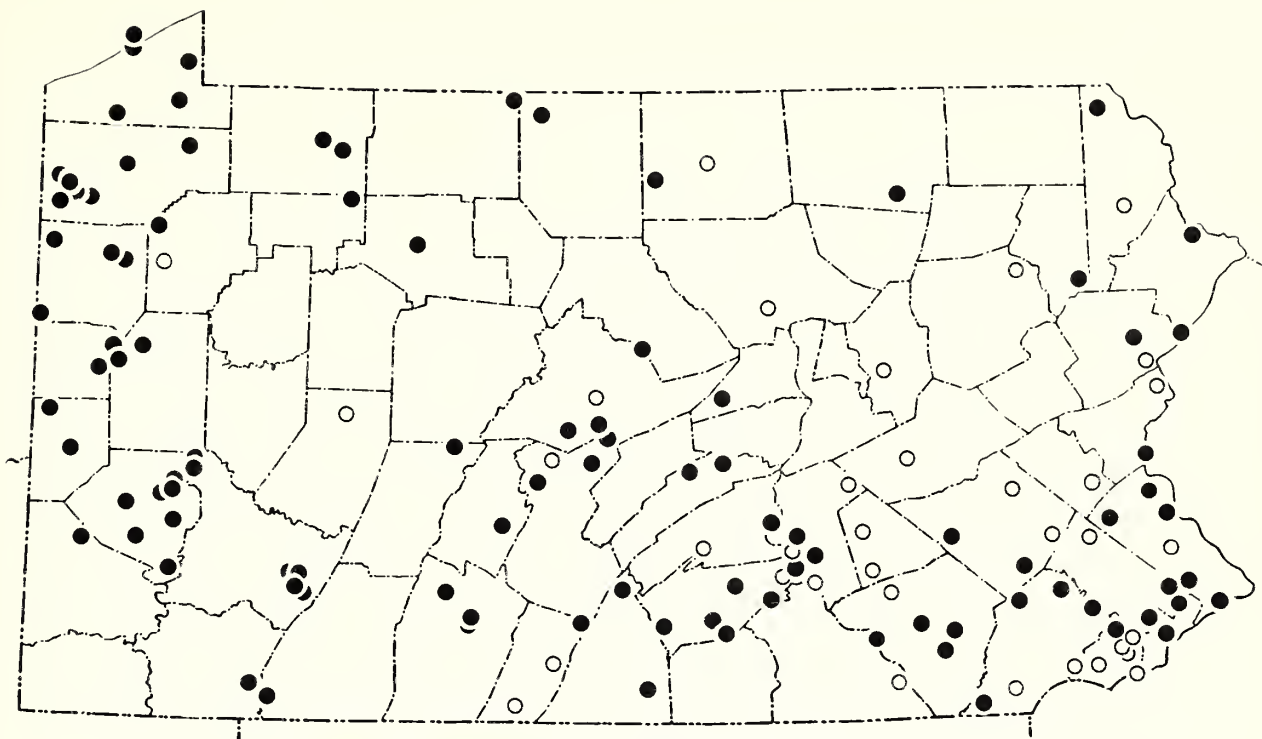
Map 43.—Blanding's Turtle (*Emydoidea blandingi*).



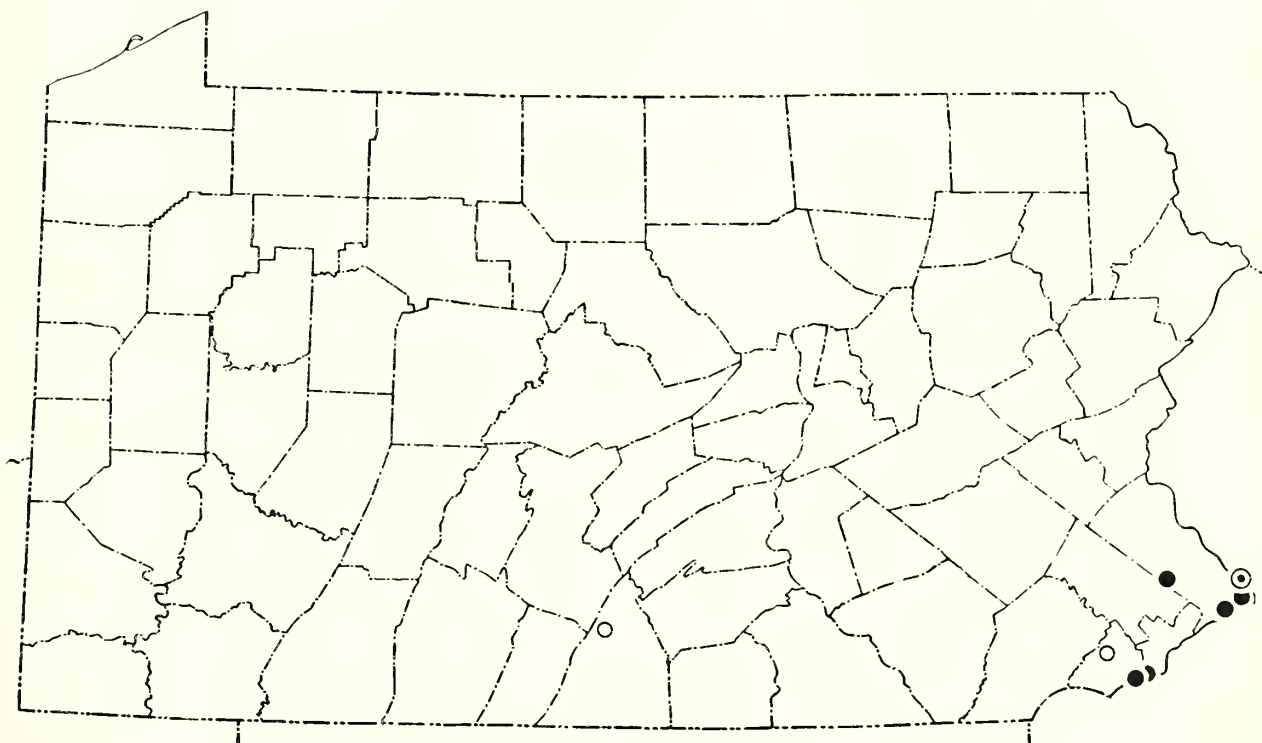
Map 44.—Eastern Box Turtle (*Terrapene c. carolina*).



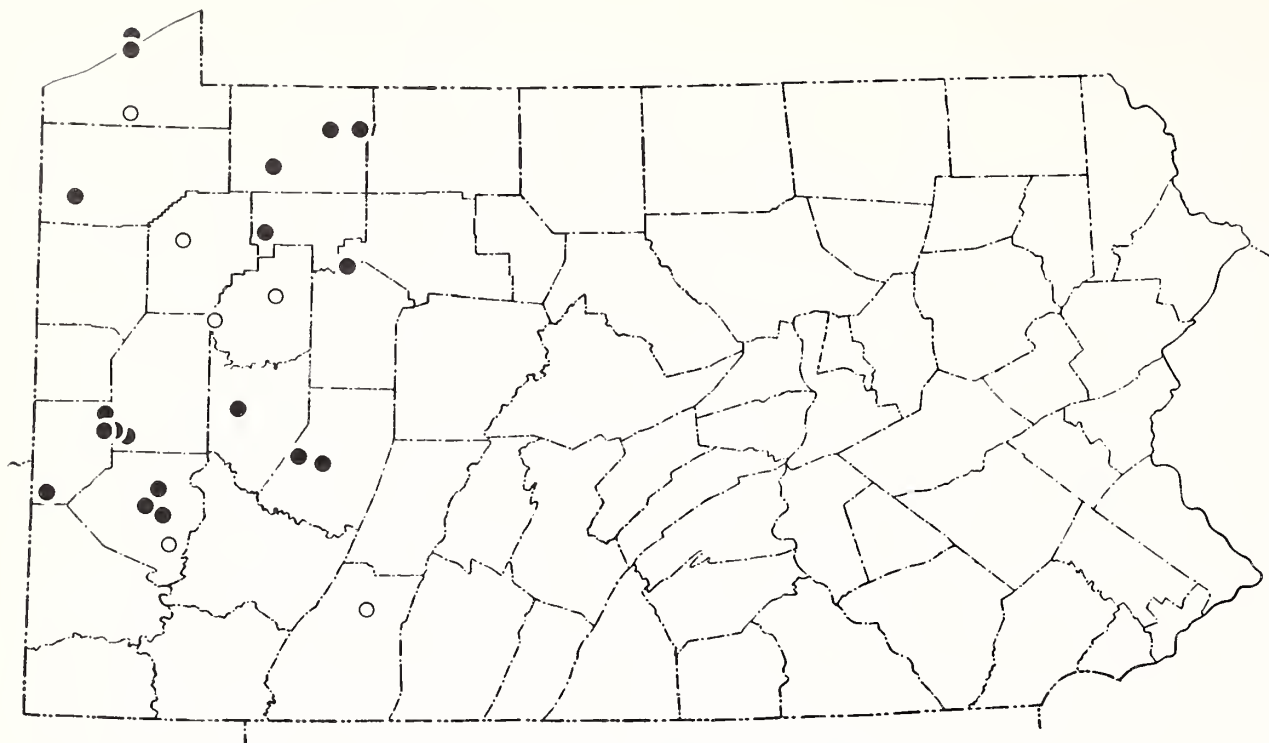
Map 45.—Map Turtle (*Graptemys geographica*).



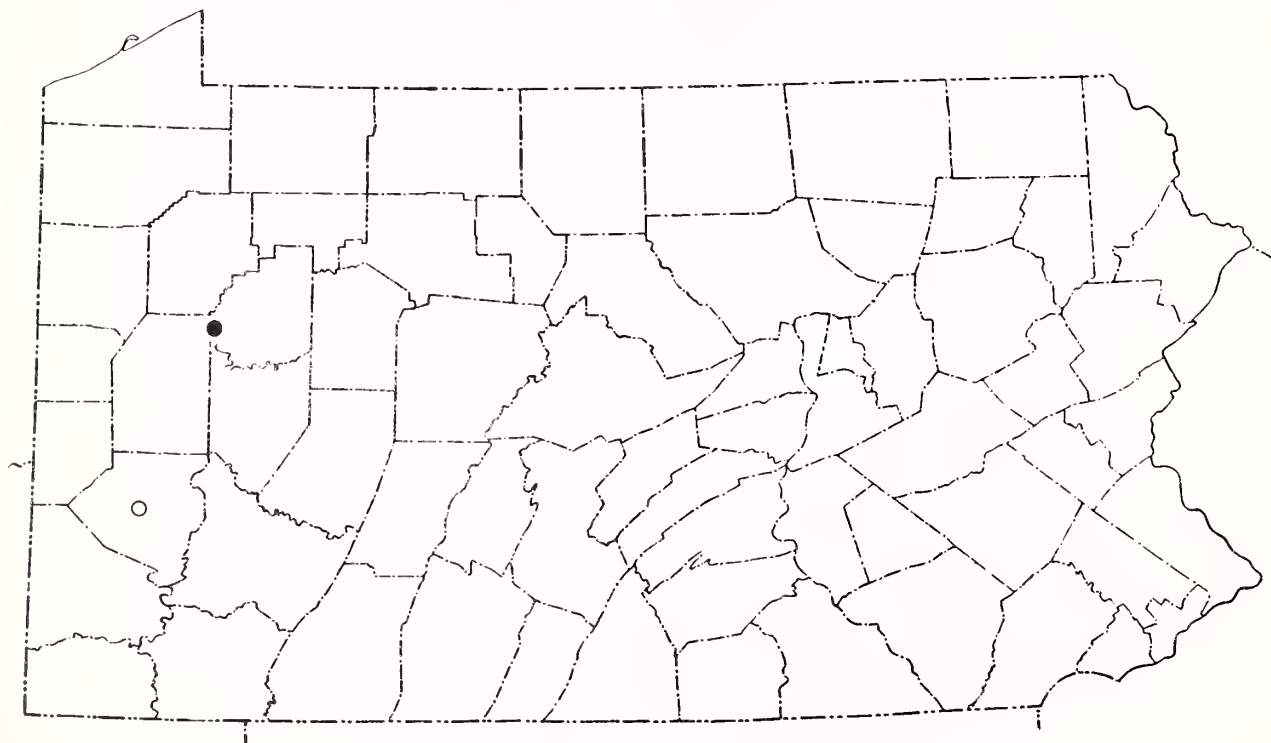
Map 46.—Midland Painted Turtle (*Chrysemys picta marginata*).



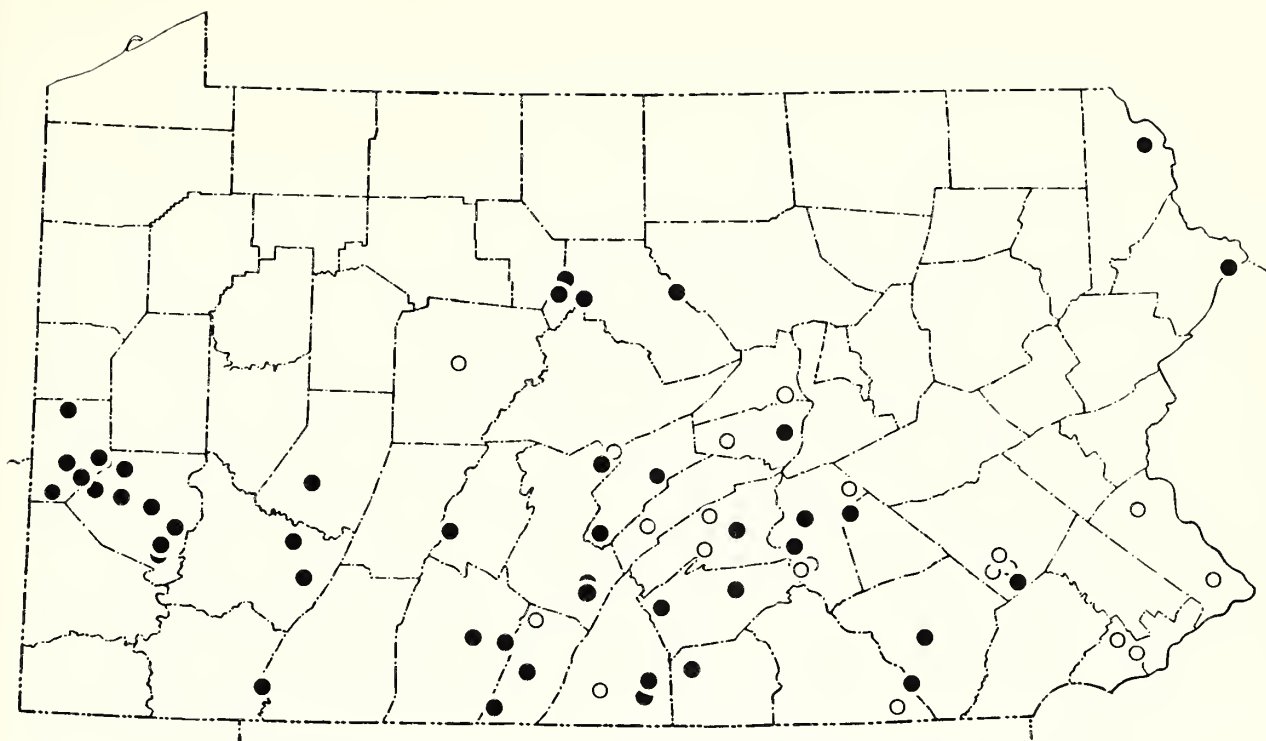
Map 47.—Redbellied Turtle (*Pseudemys rubriventris*).



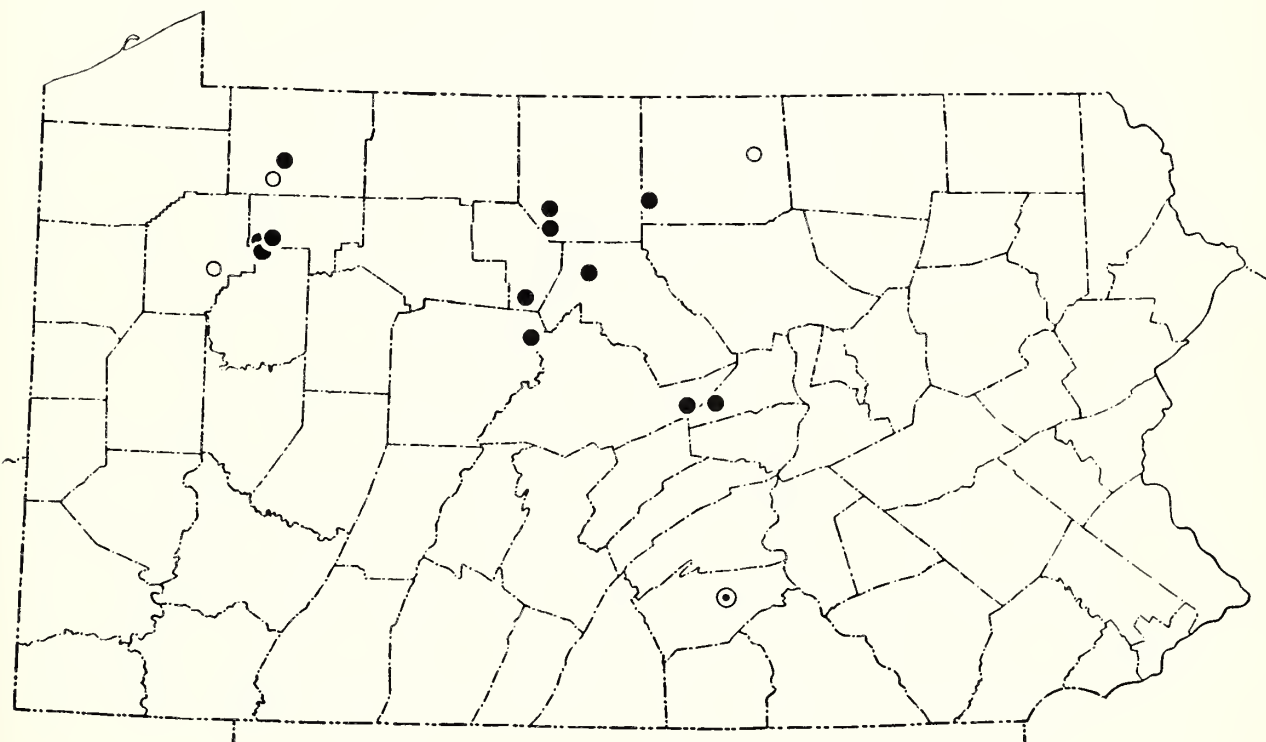
Map 48.—Eastern Spiny Softshell (*Trionyx s. spiniferus*).



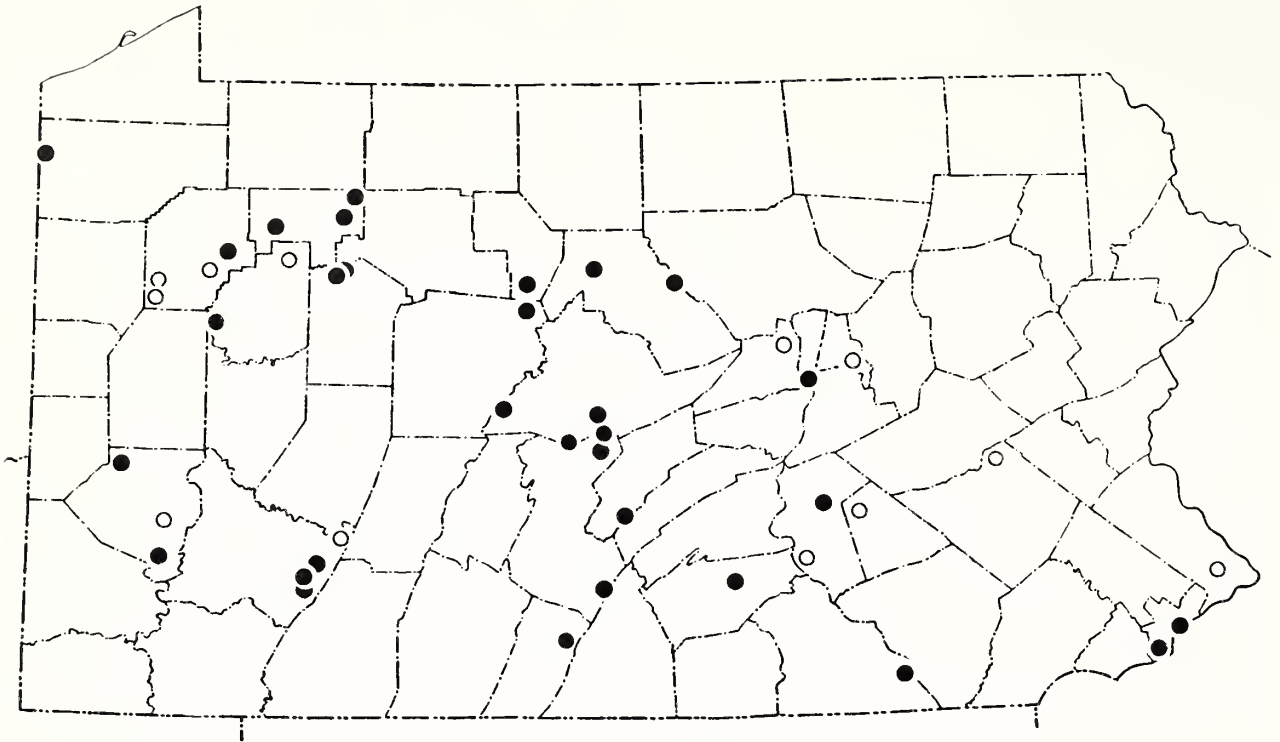
Map 49.—Midland Smooth Softshell (*Trionyx m. muticus*).



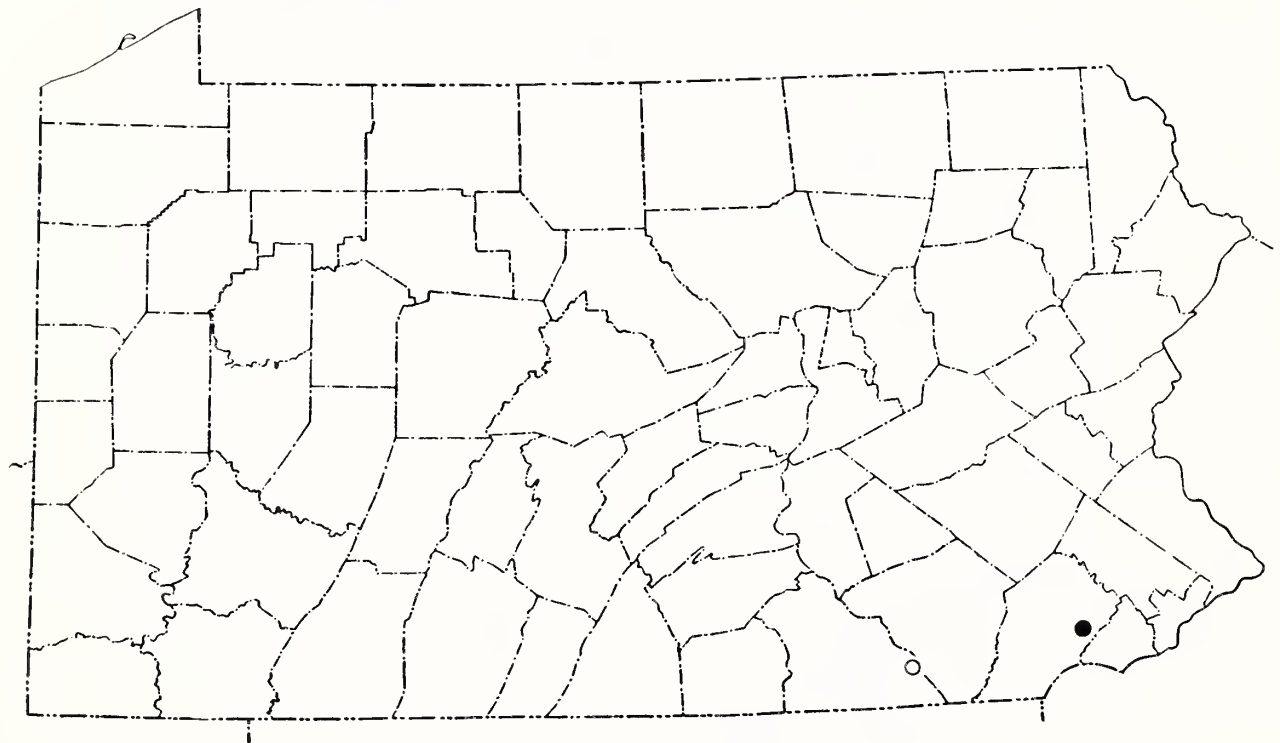
Map 50.—Northern Fence Lizard (*Sceloporus undulatus hyacinthinus*).



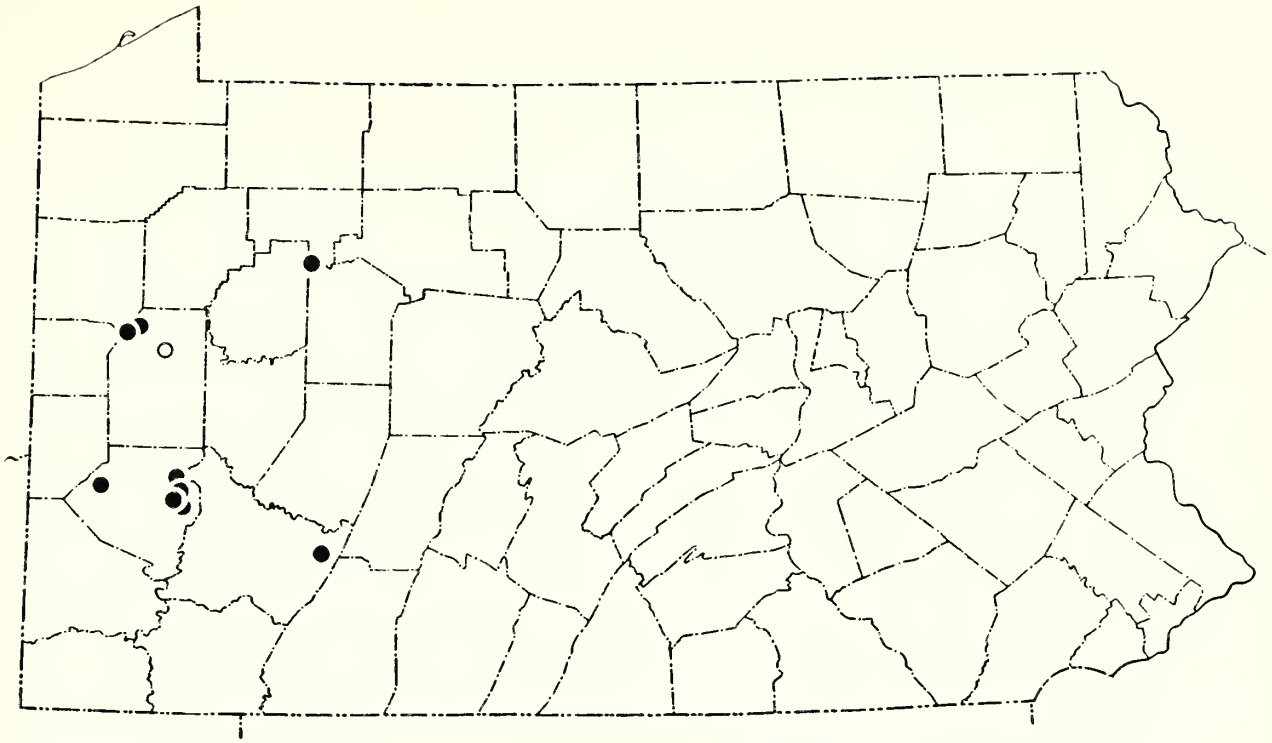
Map 51.—Northern Coal Skink (*Eumeces a. anthracinus*).



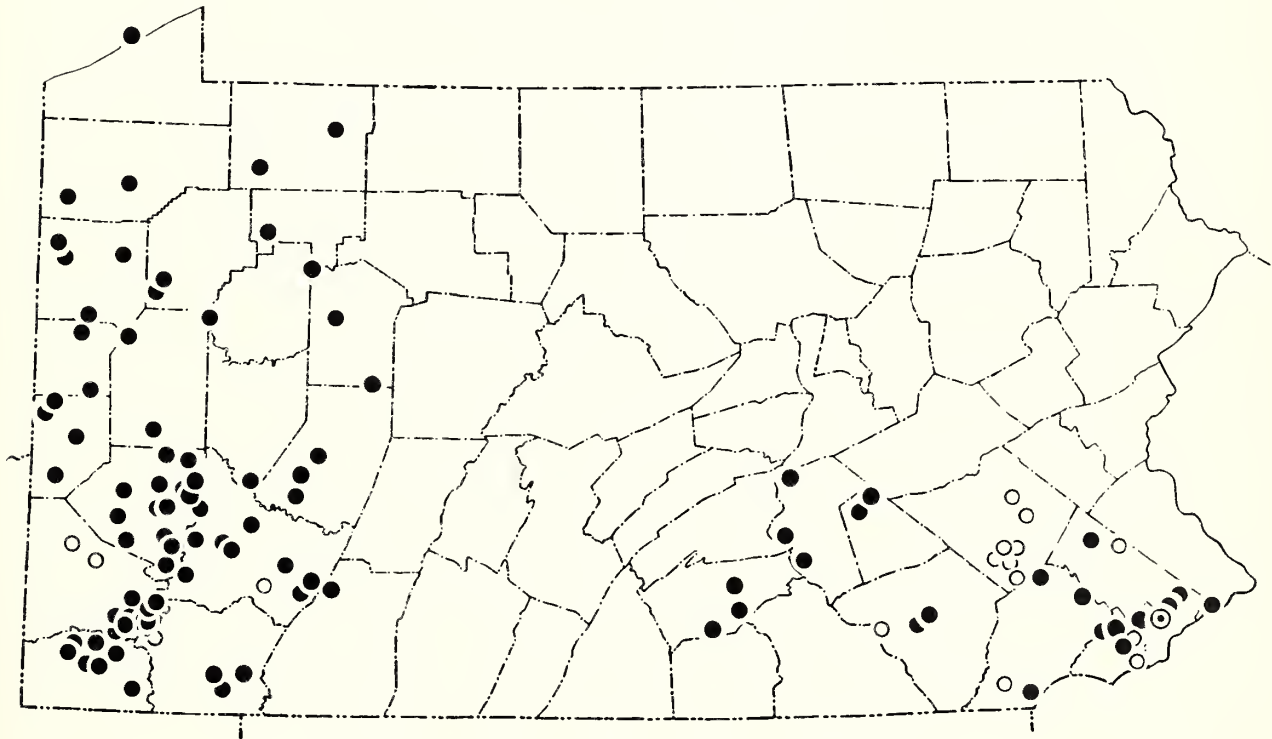
Map 52.—Five-lined Skink (*Eumeces fasciatus*).



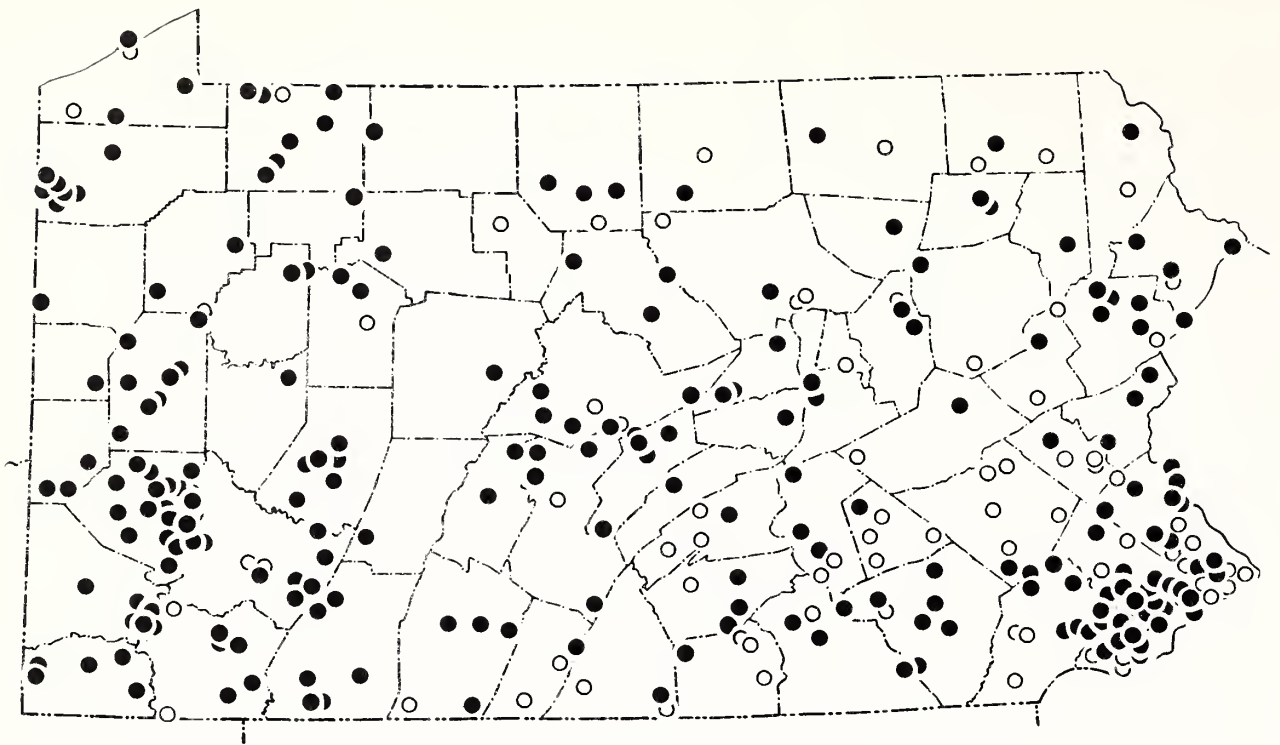
Map 53.—Broad-headed Skink (*Eumeces laticeps*).



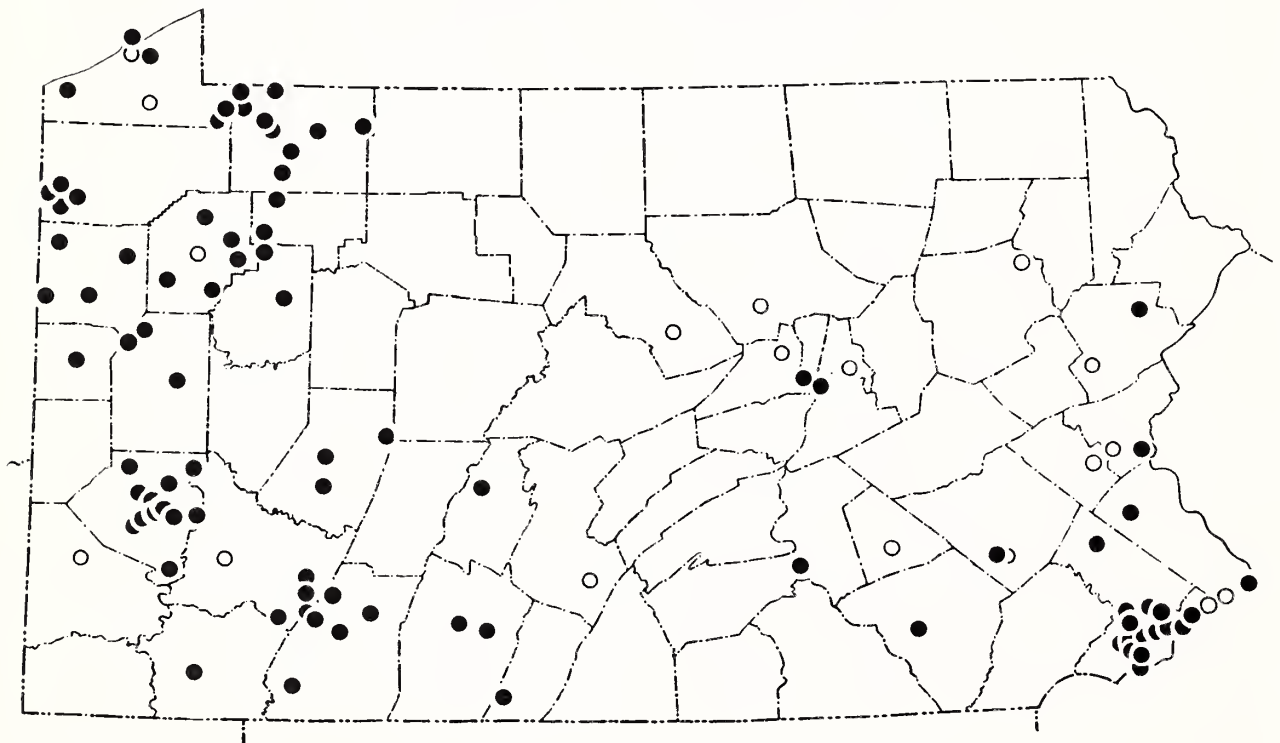
Map 54.—Kirtland's Snake (*Clonophis kirtlandi*).



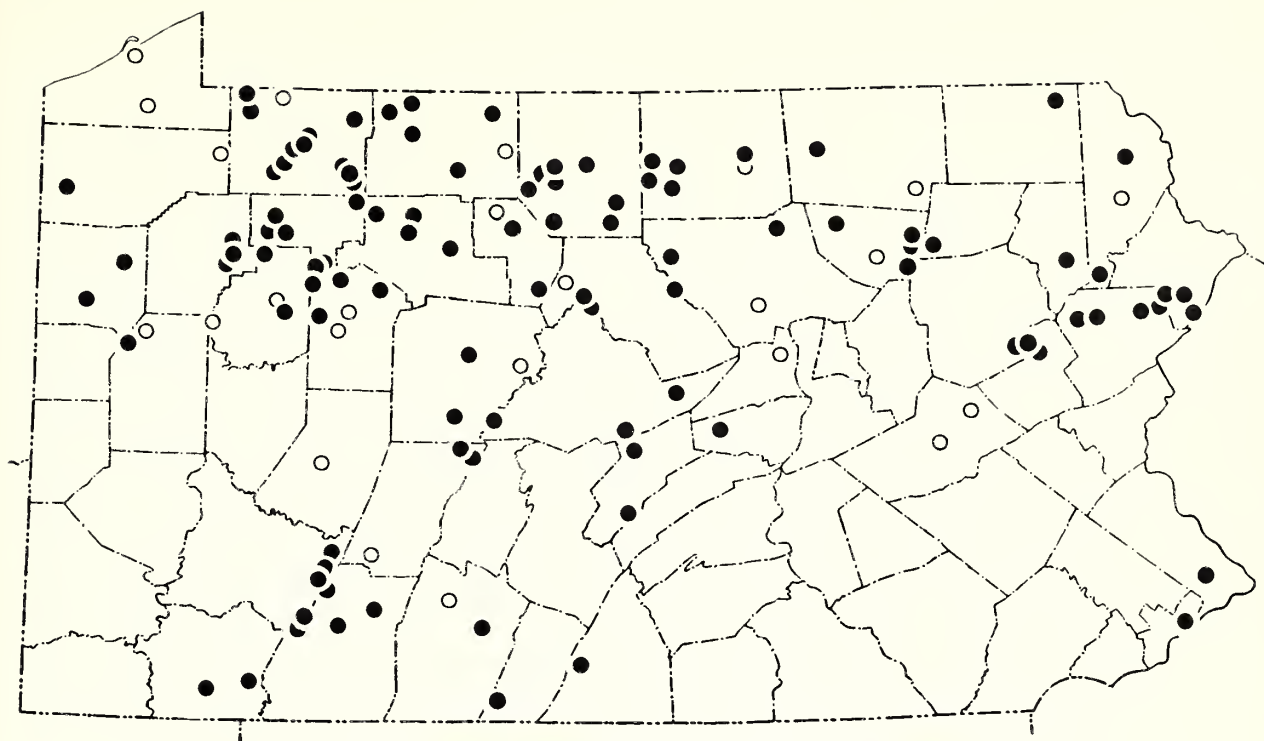
Map 55.—Queen Snake (*Regina septemvittata*).



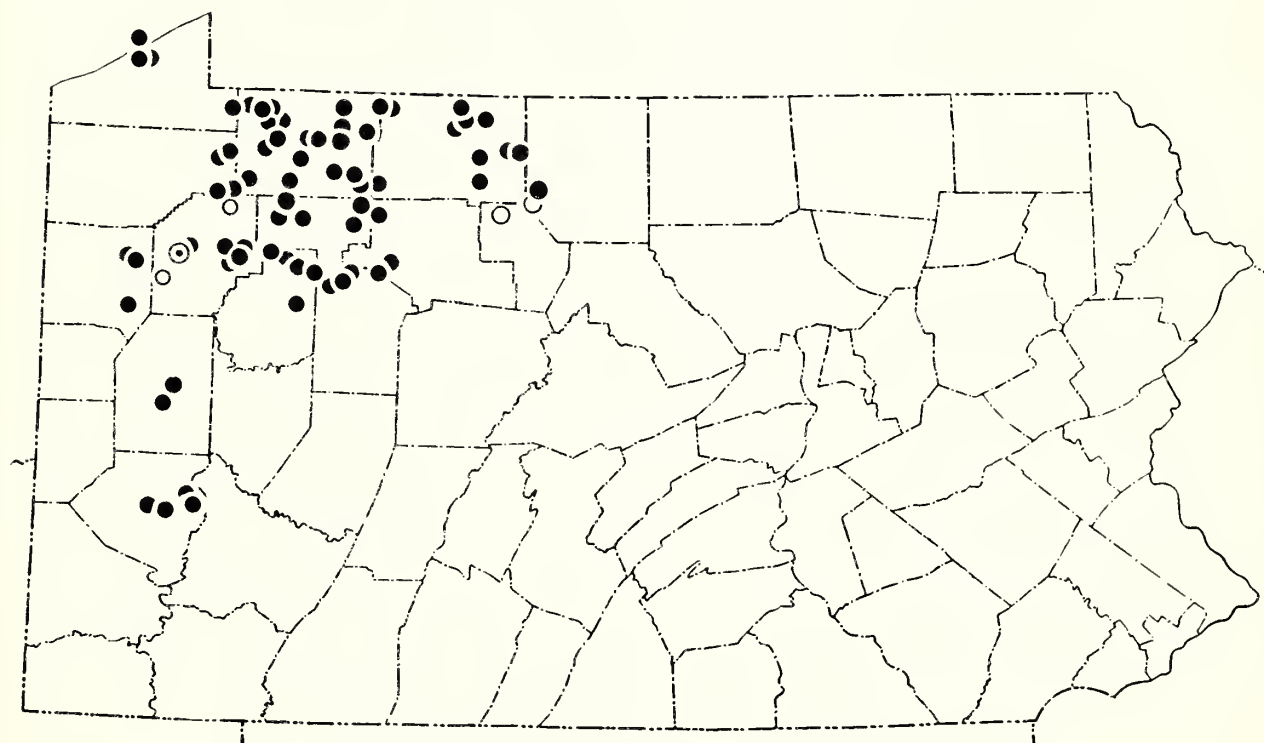
Map 56.—Northern Water Snake (*Nerodia s. sipedon*).



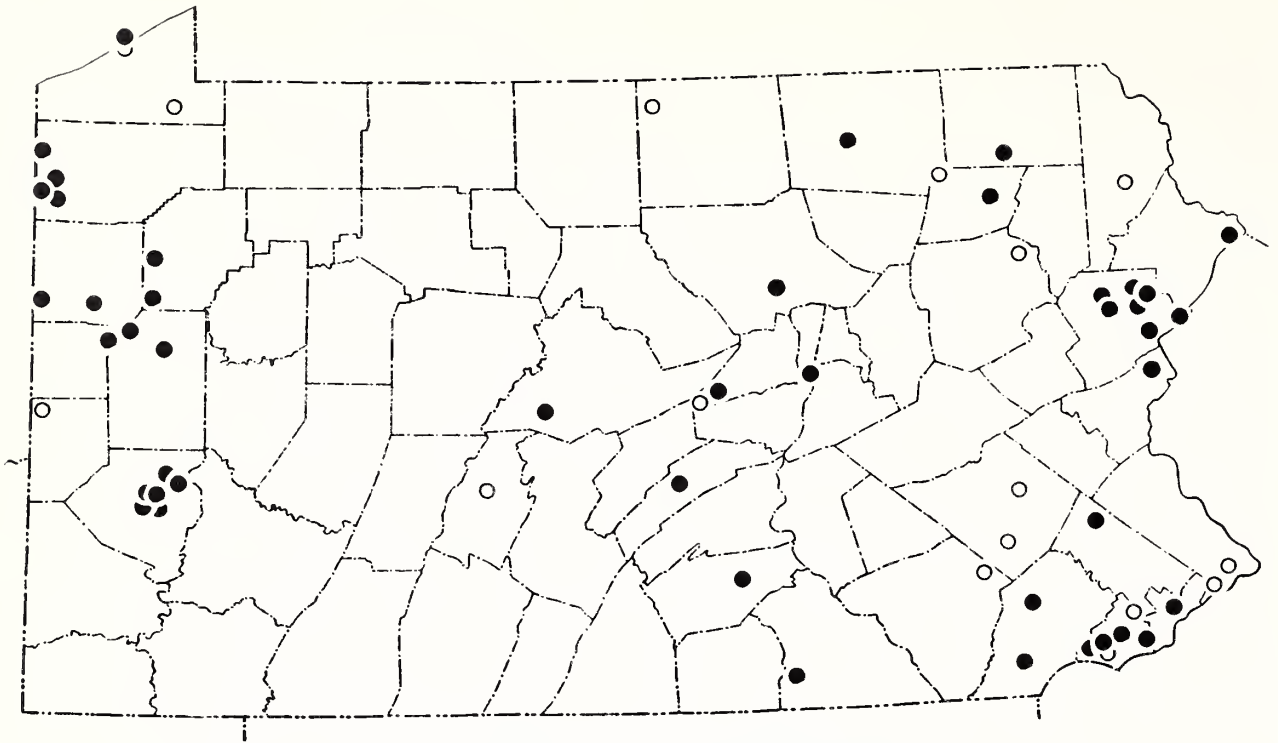
Map 57.—Northern Brown Snake (*Storeria d. dekayi*).



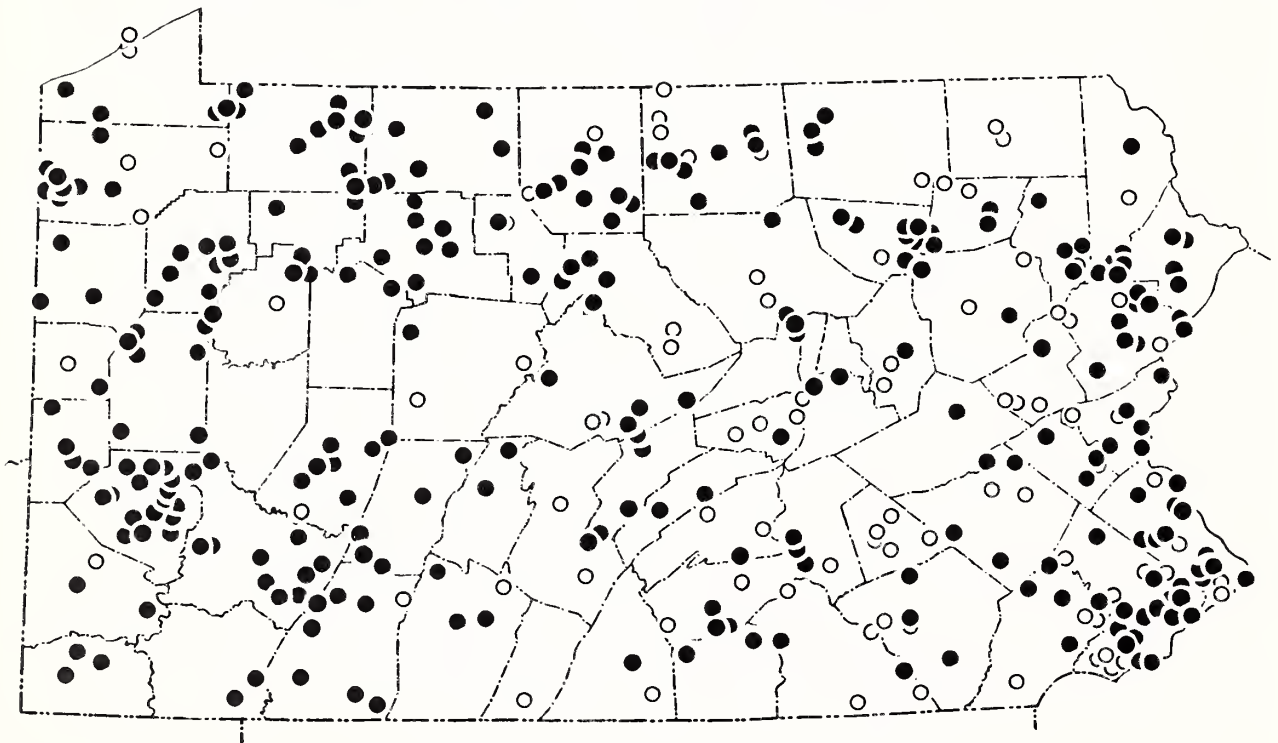
Map 58.—Northern Redbellied Snake (*Storeria o. occipitamaculata*).



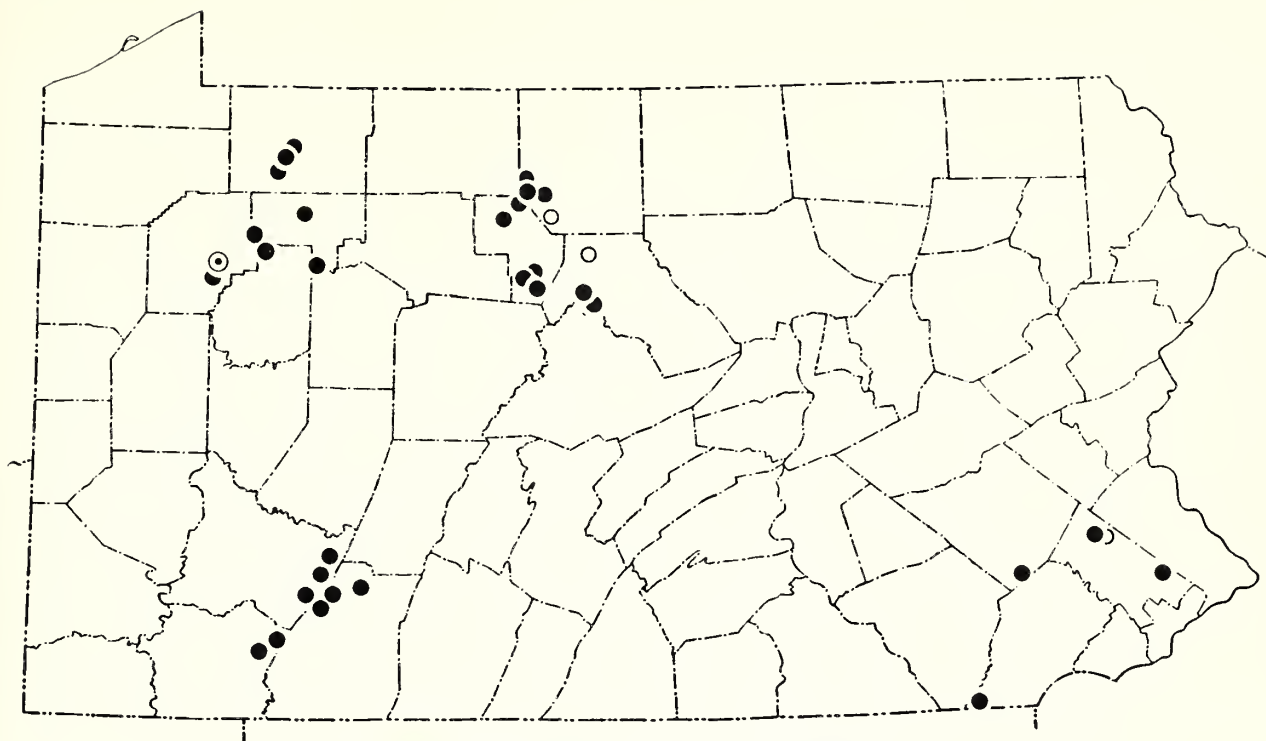
Map 59.—Shortheaded Garter Snake (*Thamnophis brachystoma*).



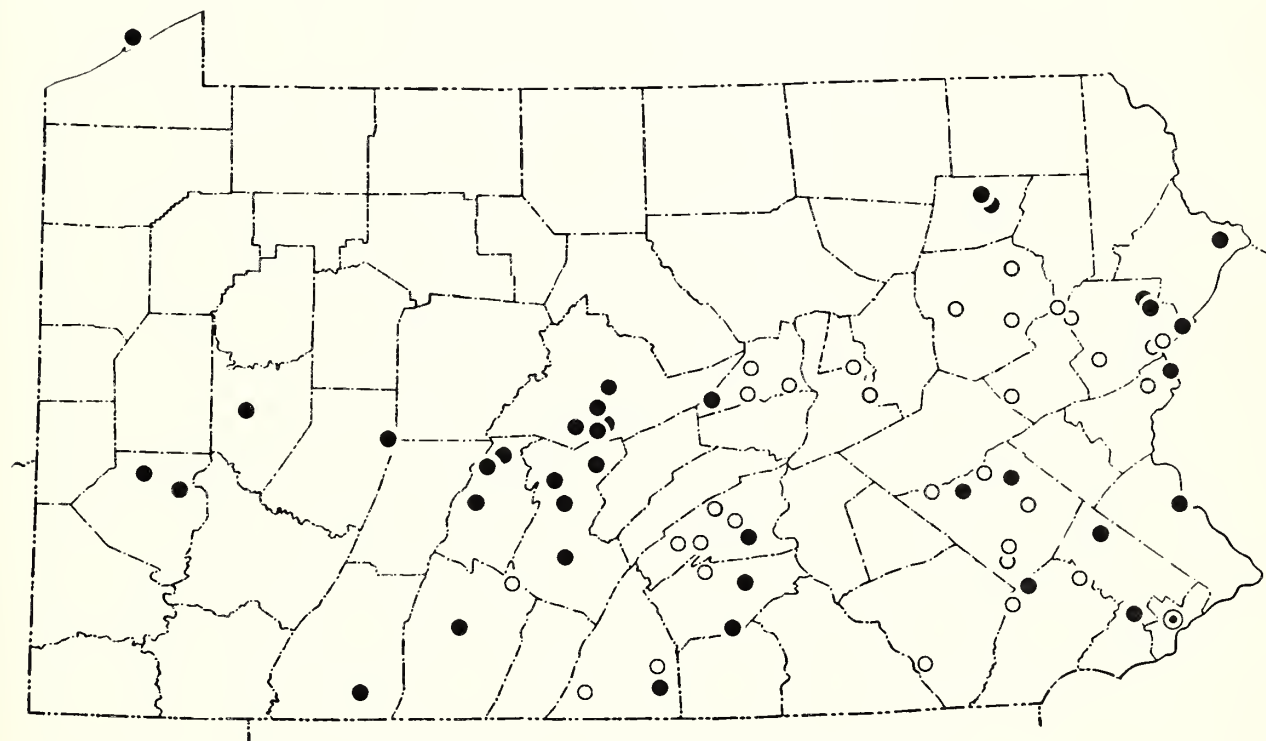
Map 60.—Eastern Ribbon Snake (*Thamnophis sauritus*).



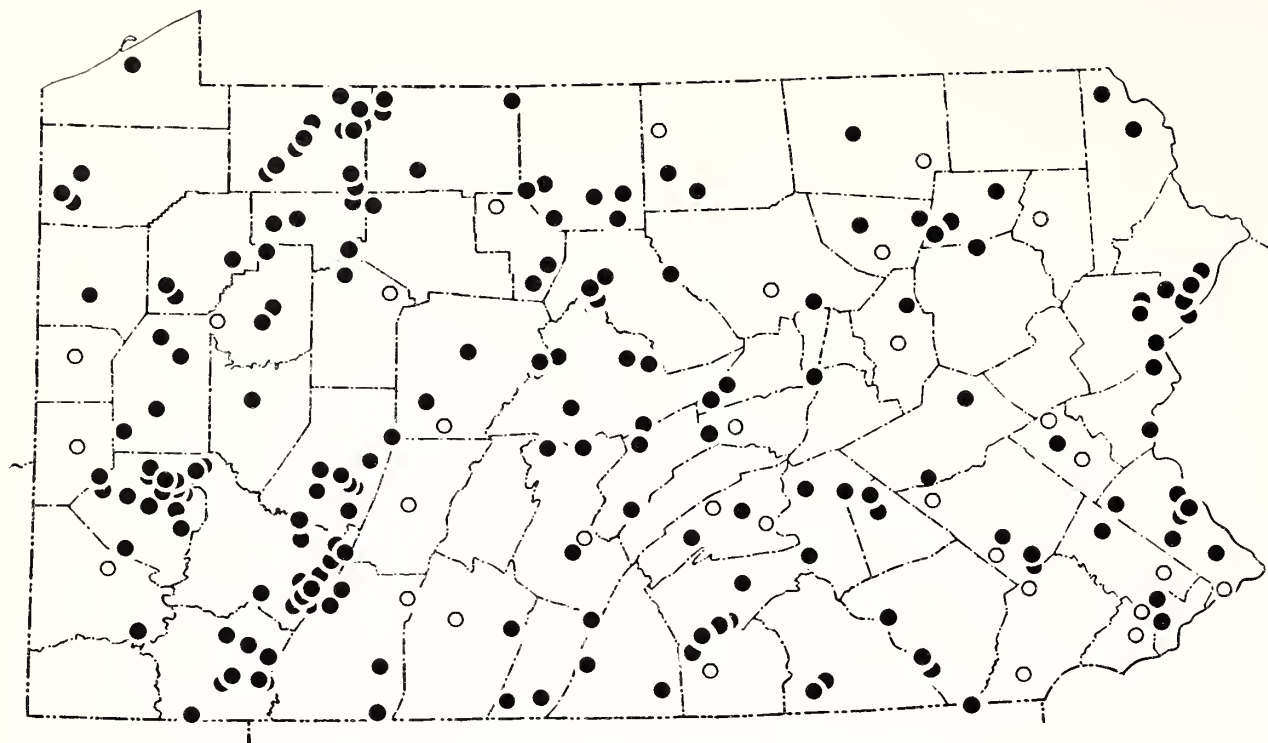
Map 61.—Eastern Garter Snake (*Thamnophis s. sirtalis*).



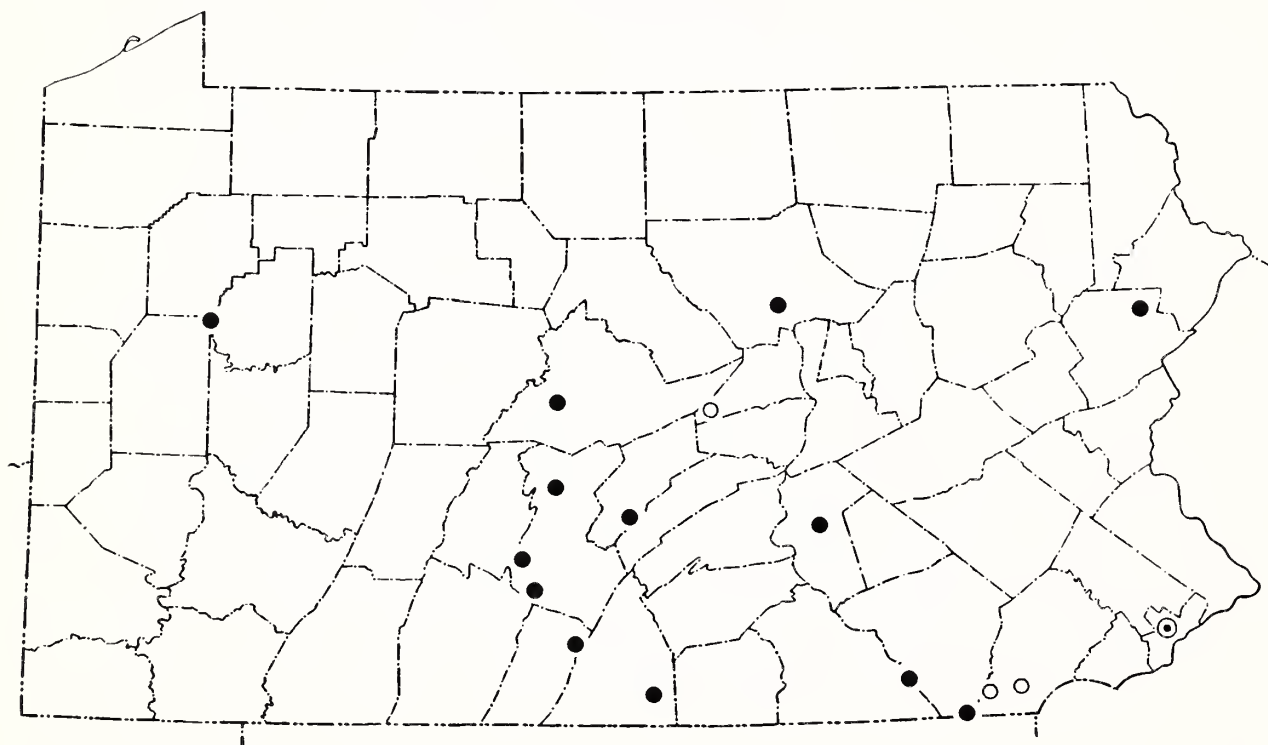
Map 62.—Smooth Earth Snake (*Virginia valeriae*).



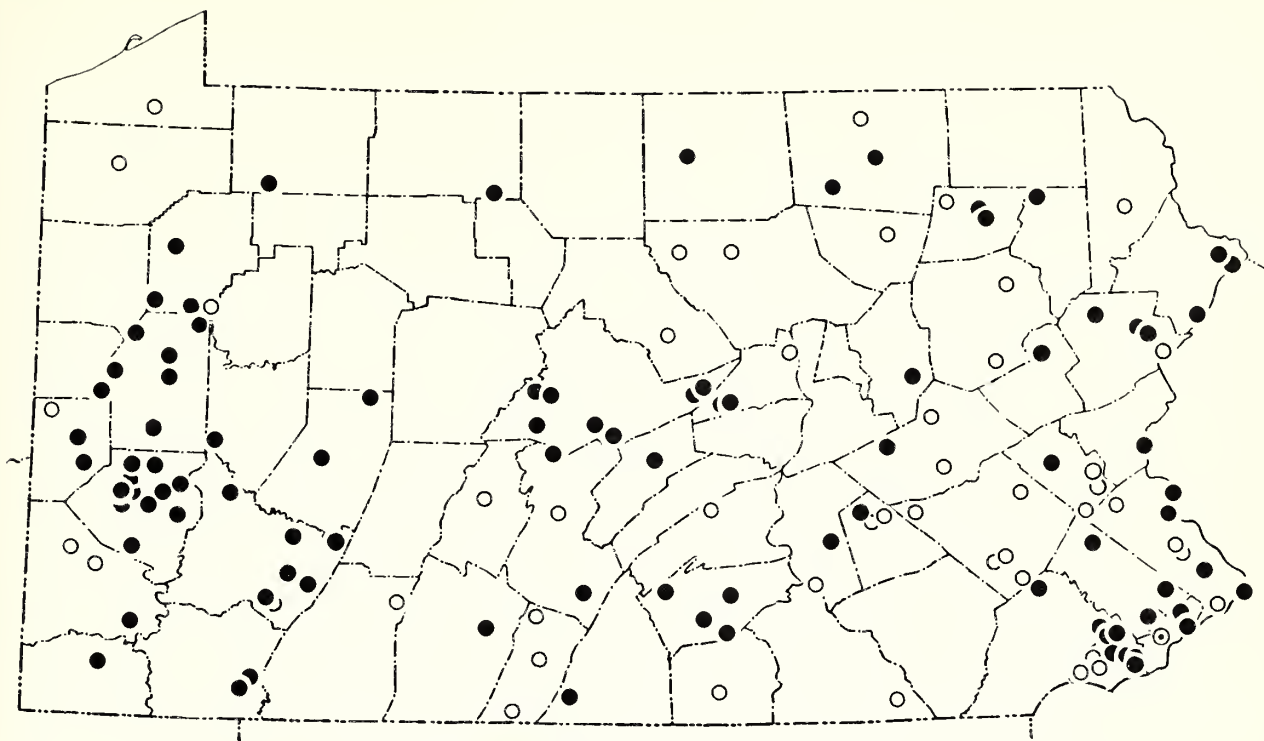
Map 63.—Eastern Hognose Snake (*Heterodon platyrhinos*).



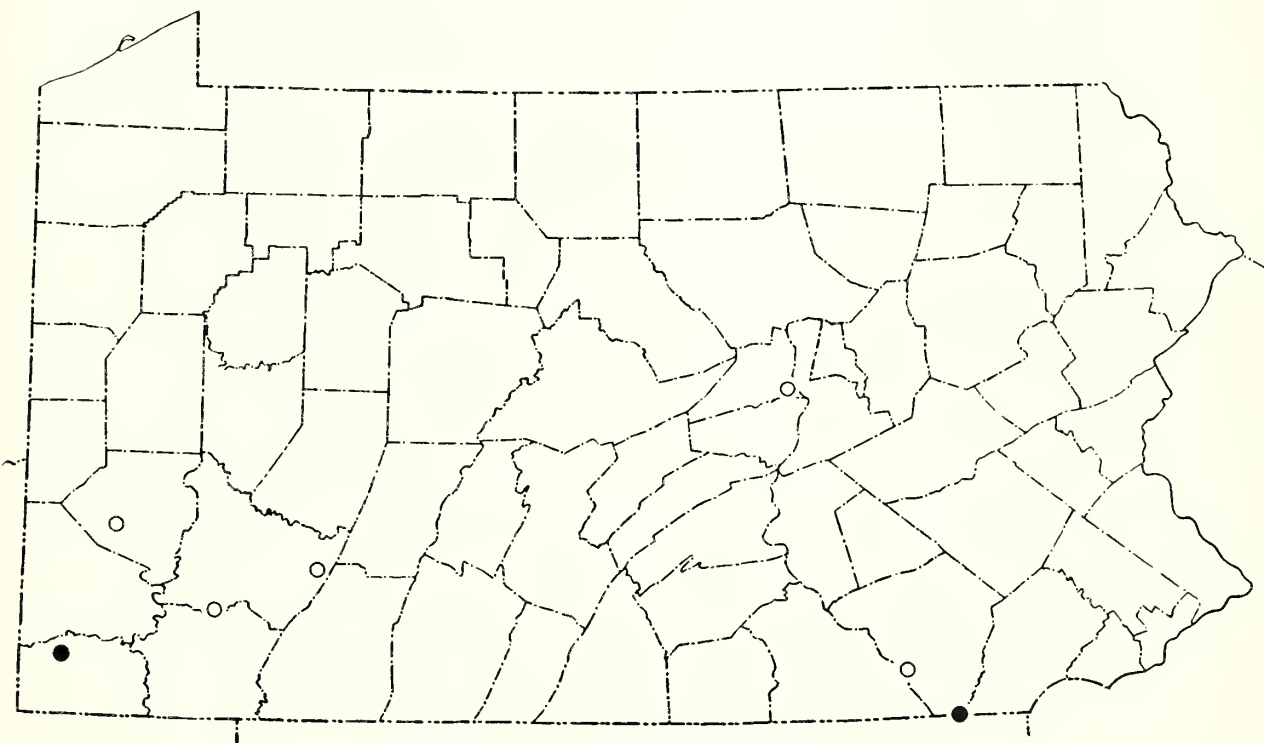
Map 64.—Northern Ringneck Snake (*Diadophis punctatus edwardsi*).



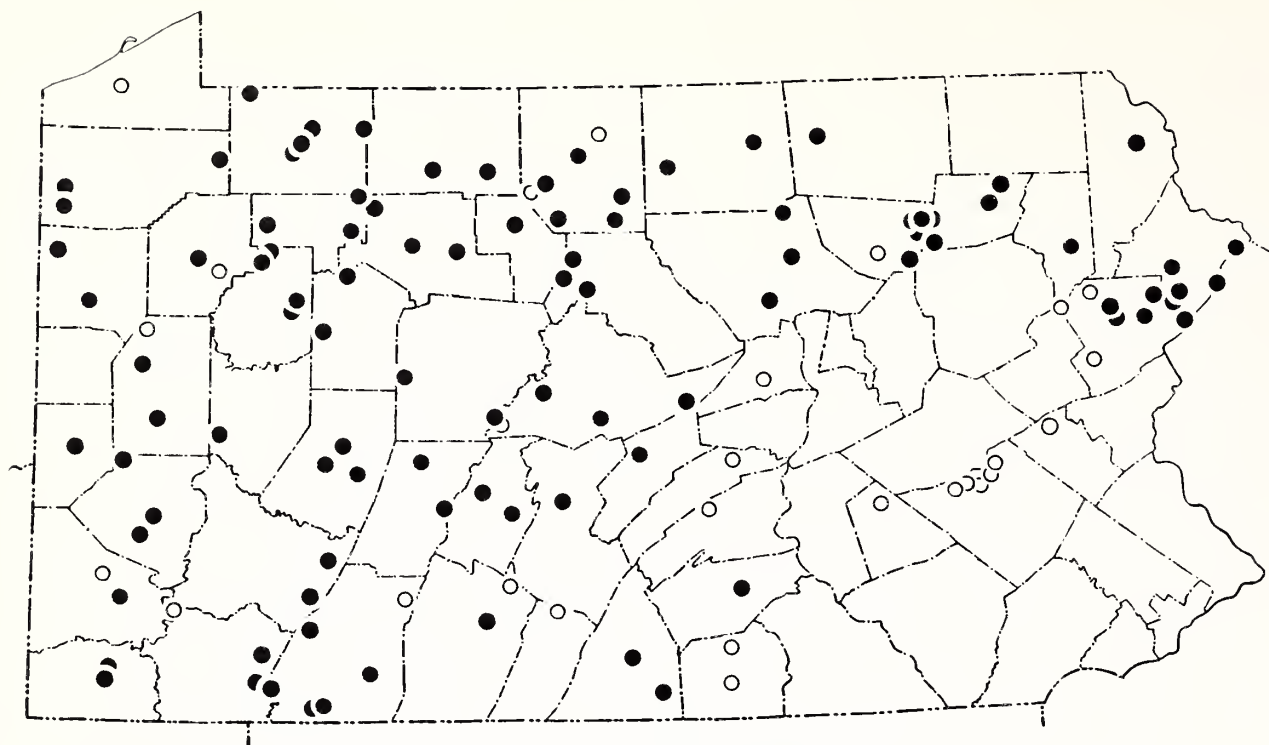
Map 65.—Eastern Worm Snake (*Carphophis a. amoenus*).



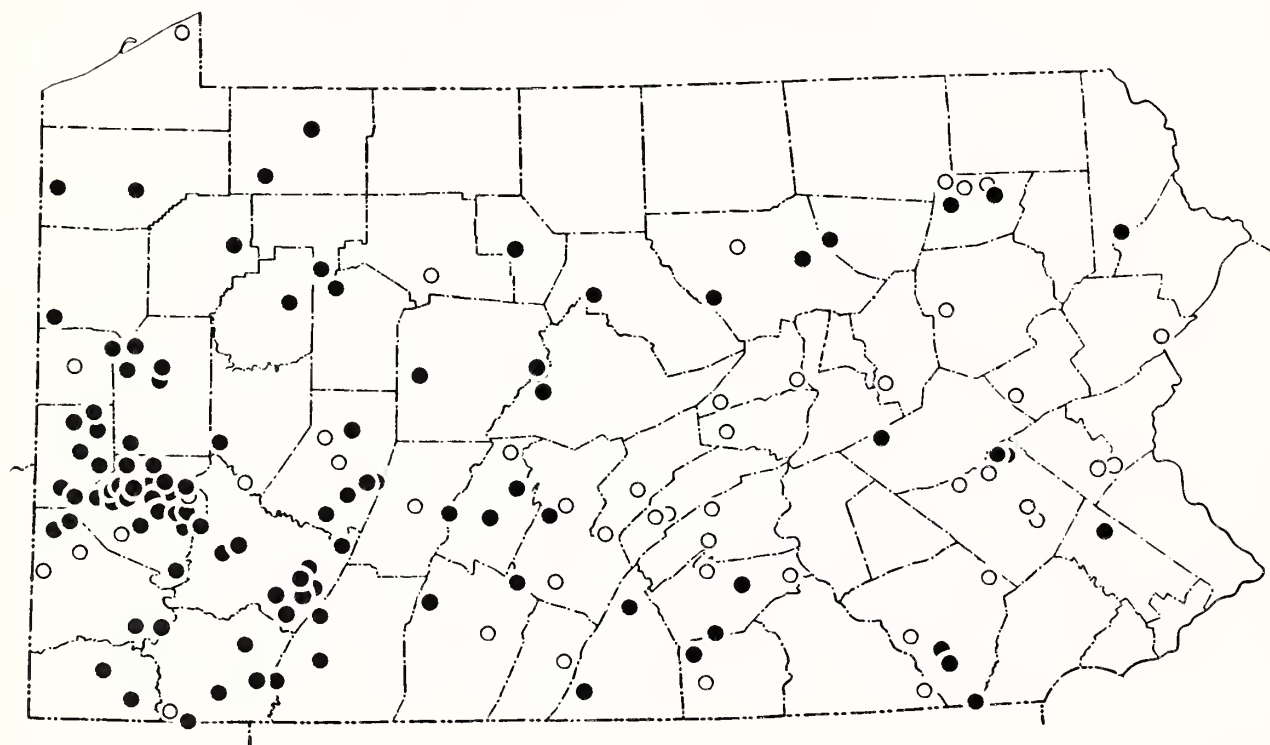
Map 66.—Northern Black Racer (*Coluber c. constrictor*).



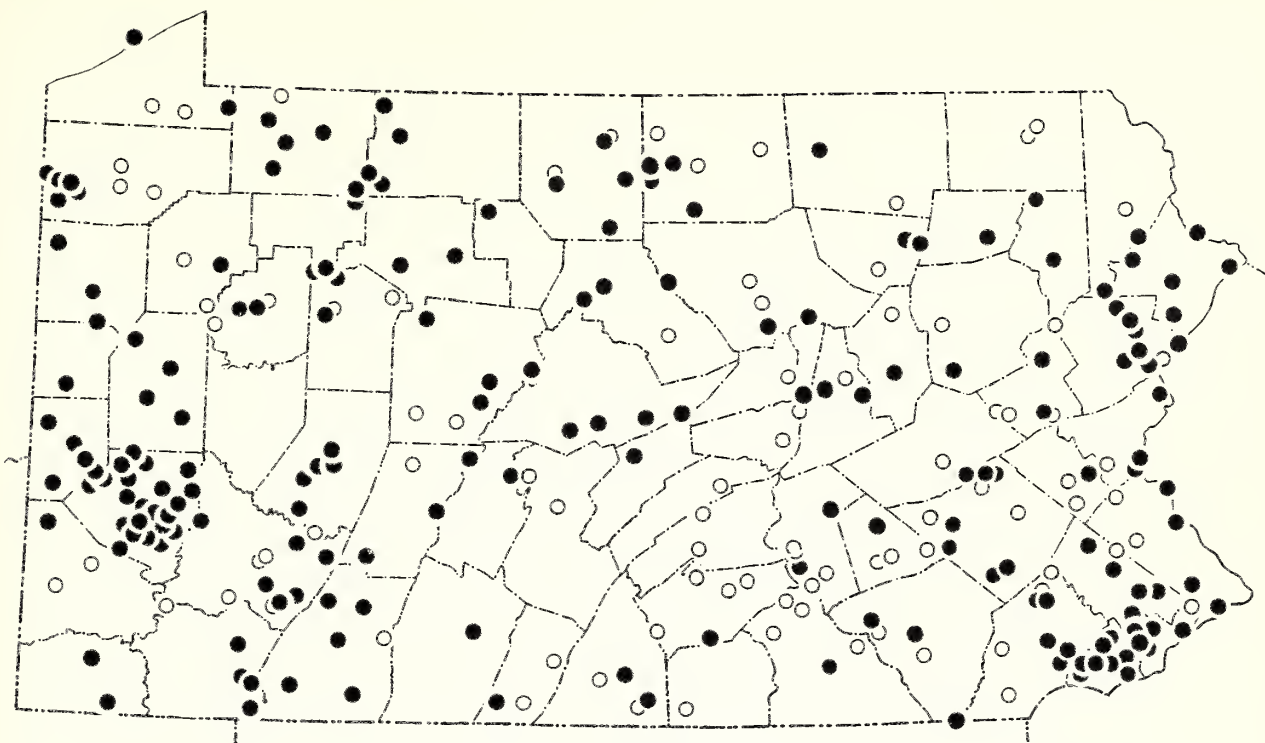
Map 67.—Rough Green Snake (*Opheodrys aestivus*).



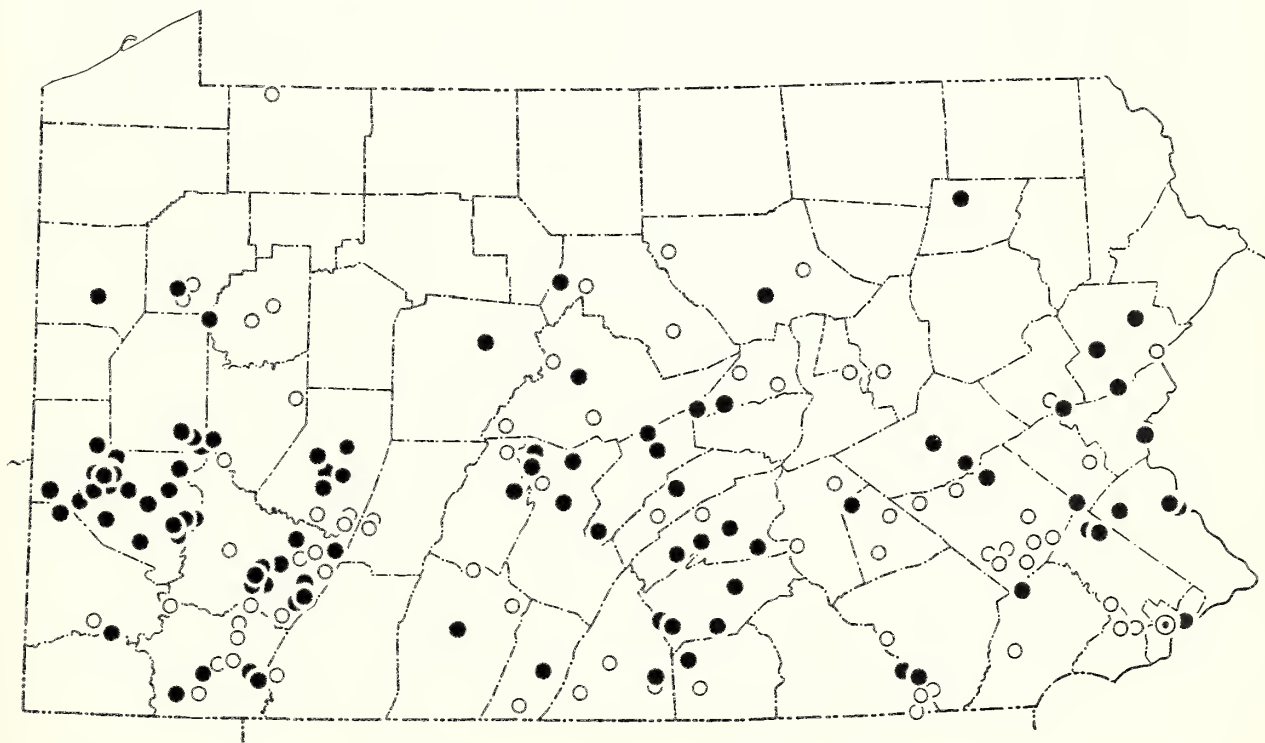
Map 68.—Eastern Smooth Green Snake (*Opheodrys v. vernalis*).



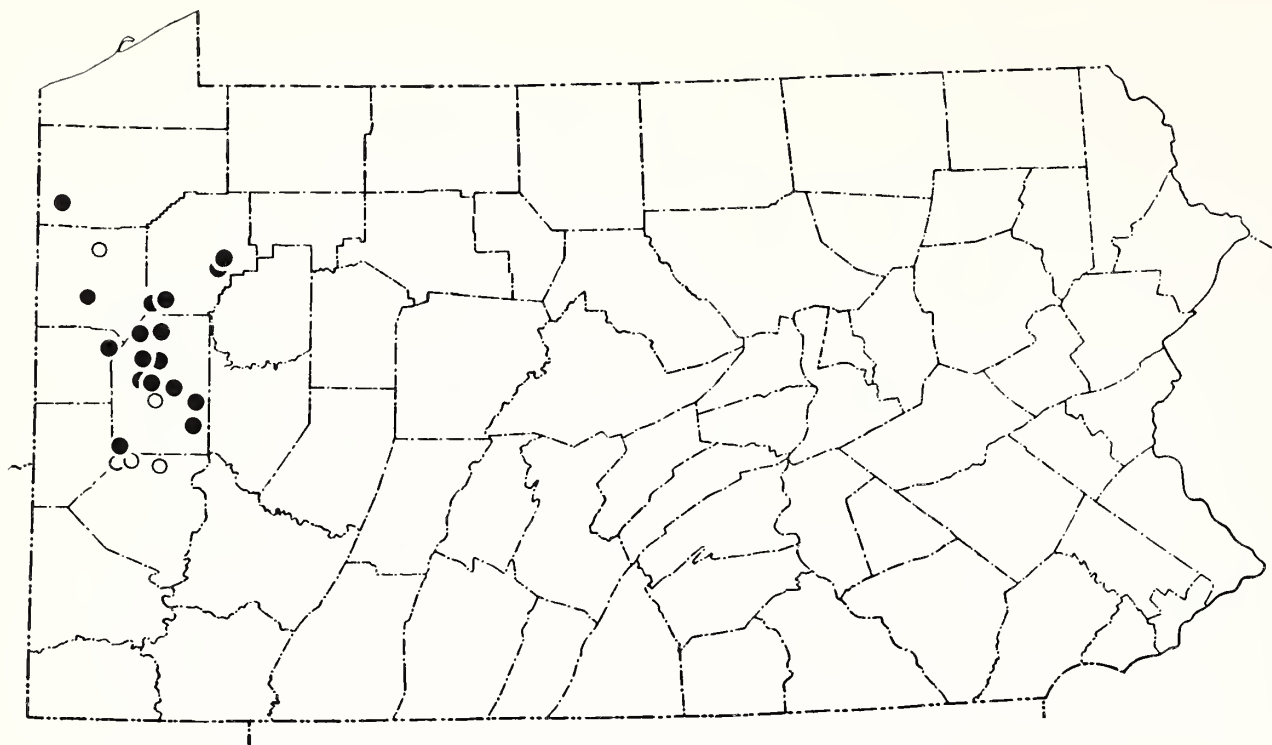
Map 69.—Black Rat Snake (*Elaphe o. obsoleta*).



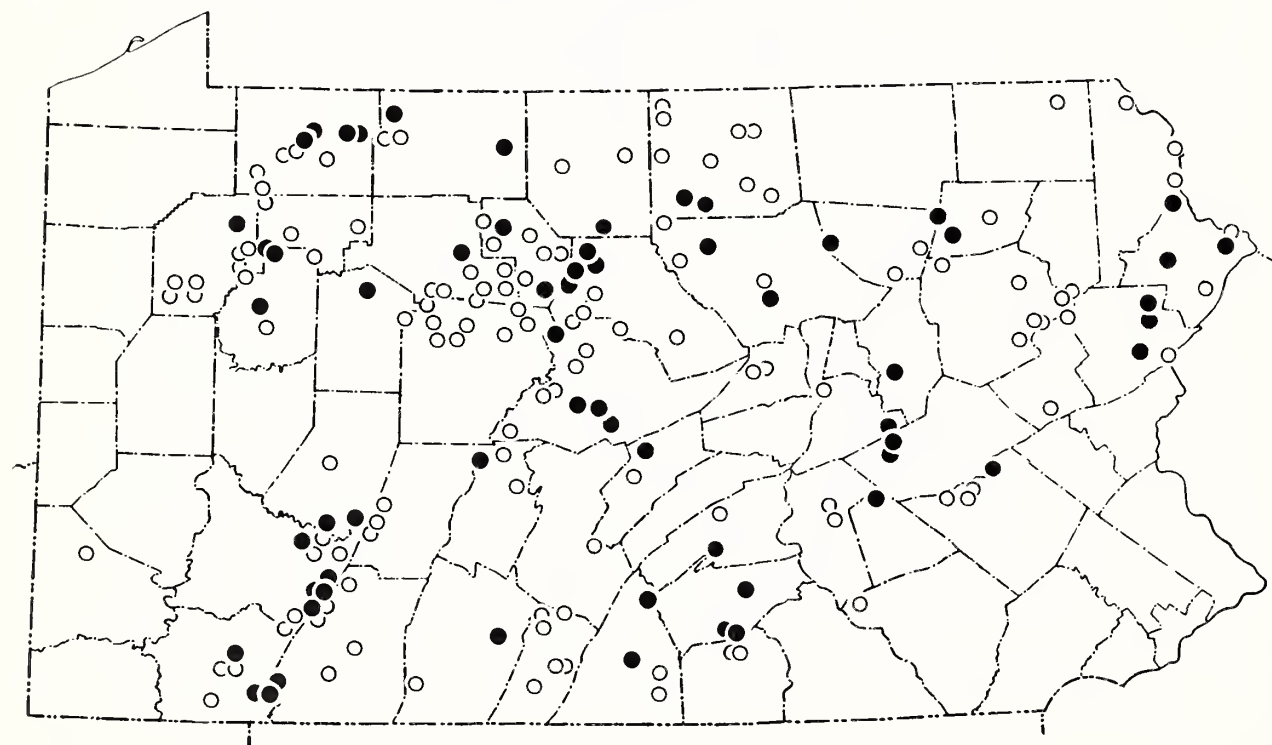
Map 70.—Eastern Milk Snake (*Lampropeltis t. triangulum*).



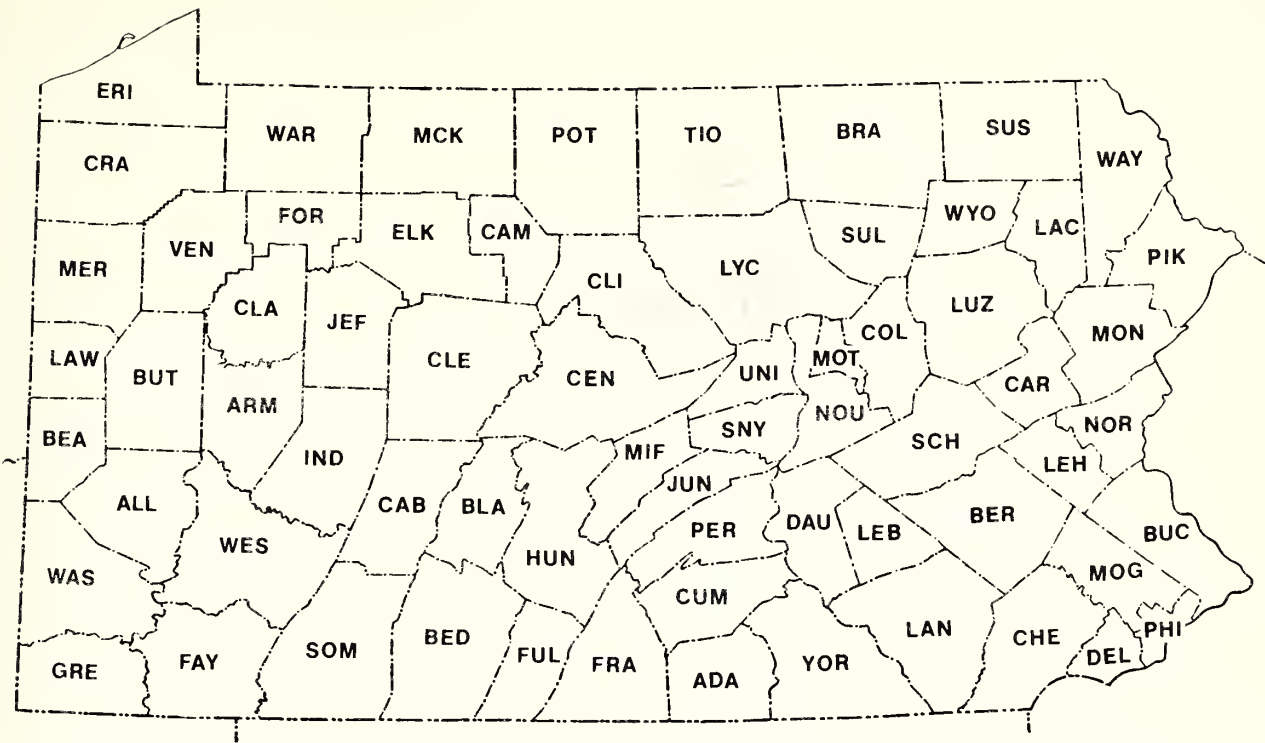
Map 71.—Northern Copperhead (*Agkistrodon contortrix mokeson*).



Map 72.—Eastern Massasauga (*Sistrurus c. catenatus*).



Map 73.—Timber Rattlesnake (*Crotalus horridus*).

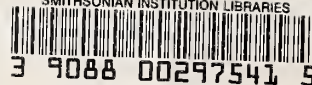


Map 74.—Pennsylvania counties. Abbreviations: Adams—ADA; Allegheny—ALL; Armstrong—ARM; Beaver—BEA; Bedford—BED; Berks—BER; Blair—BLA; Bradford—BRA; Bucks—BUC; Butler—BUT; Cambria—CAB; Cameron—CAM; Carbon—CAR; Centre—CEN; Chester—CHE; Clarion—CLA; Clearfield—CLE; Clinton—CLI; Columbia—COL; Crawford—CRA; Cumberland—CUM; Dauphin—DAU; Delaware—DEL; Elk—ELK; Erie—ERI; Fayette—FAY; Forest—FOR; Franklin—FRA; Fulton—FUL; Greene—GRE; Huntingdon—HUN; Indiana—IND; Jefferson—JEF; Juniata—JUN; Lackawanna—LAC; Lancaster—LAN; Lawrence—LAW; Lebanon—LEB; Lehigh—LEH; Luzerne—LUZ; Lycoming—LYC; McKean—MCK; Mercer—MER; Mifflin—MIF; Monroe—MON; Montgomery—MOG; Montour—MOT; Northampton—NOR; Northumberland—NOU; Perry—PER; Philadelphia—PHI; Pike—PIK; Potter—POT; Schuylkill—SCH; Snyder—SNY; Somerset—SOM; Sullivan—SUL; Susquehanna—SUS; Tioga—TIO; Union—UNI; Venango—VEN; Warren—WAR; Washington—WAS; Wayne—WAY; Westmoreland—WES; Wyoming—WYO; York—YOR.





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